

TRANSACTIONS  
OF THE  
AMERICAN ENTOMOLOGICAL SOCIETY.

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VOLUME XXXV.

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REVISION OF THE SPECIES OF DIPLLOTAXIS  
OF THE UNITED STATES.

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The genus *Diplotaxis* was erected by Kirby in 1840, *tristis* being the type species. Only three species of our fauna described by earlier authors are referable to the genus, viz.: the *Mololontha liberta* of Germar (1823), and the *M. sordida* and *M. frondicola* of Say (1825). A little later Blanchard (1850) and Burmeister (1855) described a considerable number of species from both the United States and Mexico, some of them being identical with previously described forms. In 1856 LeConte published his Synopsis of the Melolonthidæ of the United States, in which twenty-nine species are recognized, twenty-three of which are described as new, while five of the species of Blanchard and Burmeister are listed as unrecognized. This paper still furnishes the basis for the arrangement of species in our present lists, as, aside from some isolated descriptions, the genus has received no attention from our systematists of later years. That such attention is much needed has for some time been apparent, for with the gradual accumulation of material from the West, especially from our Southwestern border region, the new forms have become as numerous as those previously described, and the total number of species does not fall far short of being as great as in *Lachnosterna*.

The generic characters of *Diplotaxis* have been sufficiently set forth in the books and need not here be given in detail. Briefly stated, the more important ones are as follows:

Ligula connate with the mentum; apical margin of prothorax with membranous border; ventral segments subconnate, but with distinct sutures, five in number, the sixth not normally visible, the fifth connate with the propygidium without suture; pygidium small, middle and hind tibiae with two spurs, tarsi with distinct bisetose onychium and equal claws, the latter variably toothed; anterior coxæ conical and prominent.

In the LeConte and Horn classification the tribe *Diplotaxini* comprises four genera, *Orsonyx*, *Diazus*, *Diplotaxis* and *Alobus*. Of these *Orsonyx* is founded on a secondary sexual character of the male and is therefore untenable; the female is a normal *Diplotaxis*. The unique type of *Alobus* looks greatly like *Diplotaxis harperi*, and is probably only an abnormal specimen of that species. *Diazus* is based on a single rather small species with simple claws and 9-jointed antennæ. We have one species of *Diplotaxis* with 9-jointed antennæ, but none with simple claws. The genus may be considered valid though not very securely founded.

The tabulation of a genus of nearly one hundred species is bound to present some difficulties, which are lessened in proportion to the possibility of splitting up the mass into sharply defined smaller groups. LeConte attempted to do this in the synopsis above cited, depending chiefly on the position of the unguis, the prominence of the posterior abdominal spiracle, and the form of the clypeus. His success was only moderate, even with the relatively small number of species treated. In the much larger series now involved I have vainly attempted to separate the species into natural groups, neither the characters used by LeConte nor any that I can discern permitting its accomplishment. There seems to be an entire lack of definite association of taxonomic characters, which are so completely intercurrent that it is virtually correct to say that if any one of these common to a considerable number of species be selected as a point of departure, all of the others will be represented in the group of species thus segregated. Of the basic characters used by LeConte the

degree of prominence of the posterior spiracle appears to me to be of no use whatever. On the other hand, the position and form of the unguis tooth, and the form of the clypeus are of prime importance. To these I would add a third of nearly equal value, viz.: the structure of the mentum. Of these, the first named is least subject to individual variation, but taken throughout the series there is a complete gradation from one extreme to the other, and its use is therefore impracticable as a group character. The form of the clypeus while very useful, varies not infrequently within specific limits to a confusing degree; here, too, there is every intermediate form between the extremes. The form of the mentum is especially serviceable in certain parts of the series, but it also possesses in greater or less degree the failings of the other two. In the absence of group characters it has been found convenient to place at the beginning of the series those species which have the upper surface wholly or in part hairy or pubescent. They do not constitute a natural group, but the character being a perfectly definite one, tabulation is thus facilitated. Some preliminary discussion of certain structural details and of the significance of certain terms used may aid the student in his use of the table and in reading the descriptions which follow.

With the single exception of *abnormis* (with 9-jointed antennæ) all the known species of this genus have the antennæ 10-jointed. These organs are monotonously similar in structure throughout the genus, and have yielded no specific characters. There are, it is true, some—usually slight—differences discernible in the relative lengths of club and stem, but these have not been thought of sufficient moment to describe. The labrum is usually broadly arcuately emarginate, and is to be so understood when not otherwise described. In *marens* and *peninsularis* the emargination is much deeper, and in *popino*, *mimosæ* and *cribrulosa* of the hairy species, and *knausii* and *fissilabris* of the glabrous ones this organ is so deeply divided as to merit the term bilobed. The two last named species are further remarkable in that the mentum is also excavate in front. In the majority of species the elytra possess a more or less minute granulato-reticulate sculpture,

for which for brevity, I have used the term alutaceous throughout the descriptions. The pronotum is frequently similarly sculptured though usually less distinctly so. In a few species (*villosa*, *puberula*, *cephalotes*, *bidentata*) the upper surface is polished throughout, while in a larger number (*brevisetosa*, *levicoxa*, *dentella*, *frontalis*, *excavata*, *brevidens*, *acerba*, *pubipes*, *basalis*, *errans*) the fine sculpture is very feeble or barely detectable with a one-fourth-inch triplet. The elytra are always punctate-striate in nine rows, of which the second and third and also the fourth and fifth—counting from the suture—are paired, owing to the greater width of intervals 2-4-6, and have often been referred to as the geminate striæ. The third and fifth intervals—those included between the geminate striæ—are frequently a little more convex, and constitute the so called discal costæ. For the sake of uniformity this term has been used in descriptions of all species, though in many these intervals are not in the least costiform. The broader intervals 2-4-6 have been called the first, second, and third intercostal spaces. Of these, the first is always the widest, and is invariably confusedly punctate; the second and third are less wide, and usually with the punctuation more or less irregular, often almost as conspicuously so as in the first (*tristis*, *liberta*, *harperi*, *frondicola*, *truncatella*, *thoracica* and many others); in rare instances (notably in *dentipes*, *subangulata*, *trementina* and *tenuis*) the punctures of the second and third intercostal spaces are disposed in a single nearly regular row on each, though there is some individual variation in this respect. The narrow intervals, 1-3-5-7-8-9, have with rare exceptions (*sordida*, *schaefferi*) each a single series of fine punctures, except the sutural, on which the series is usually less regular. In a few species the punctures of the narrower intervals are nearly as coarse as those of the striæ and of the broader intervals. In *levicosta* and *atrátula* the narrow intervals are almost devoid of punctures, and in several others they are few and widely spaced. A somewhat trifling character, but one which is very persistent throughout the genus, exists in a more or less obvious impression along the seventh stria at or before the middle. No reference has been made to this in the descriptions, but as an illustration of variation in



position of the impression the well-known species *tristis* and *liberta* may be cited; in the former it is very nearly at the middle of the elytra, while in the latter it is just behind the humeral umbone. The apical marginal groove of the propygidium is another character so generally present, that reference is rarely made to it, except in the few species in which it is feeble or absent. In many species the second ventral segment and sometimes the third and fourth exhibit at the middle a more or less obvious series of short parallel ridges or grooves, which in a smaller number of species (e. g., *knausii*, *brevicollis*, *levicoxa*, *haydenii*) are replaced or accompanied by an obtuse, more or less plicate tubercle on each side of the middle. This sculpture varies greatly in development in individuals of the same species and is possibly in some degree sexual; and because of this variability little or no mention has been made of it in the descriptions. The variations in the structure of the mentum will be best appreciated by an examination of a few of the typical forms, while the differences in the form of the clypeus and claws are fairly well shown by the outline figures of the plate.

Secondary sexual characters are not entirely wanting, but with a few exceptions they are of such a nature that it is rarely possible to determine the sex of a single specimen, and even in a considerable series containing both sexes, they can rarely be separated with certainty. If from a series of specimens of almost any species, those having the most slender and the most robust hind femora be selected, the former are almost sure to be males and the latter females; but the differences are often very slight, and even when more pronounced there are usually intermediates which to all appearances seem as likely to belong to one series as the other. In addition to this general distinction the following special sexual differences have been observed, the characters in all cases pertaining to the males.

Terminal joint of maxillary palpi more broadly dilated—*bowditchi*, *brevidens*, *tarsalis*.

Antennal club a little more elongate—*bowditchi*. This has not been carefully investigated and there are probably others.

Eyes larger—*schaefferi*, *confusa*. There are probably others.

Clypeal angles more distinctly defined—*ambigua*.

Abdomen flattened and usually more hairy—*brevidens*, *illustris*, *thoracica*.

Basal joint of anterior tarsus stouter—*knausii*.

Femora and tibiae (in part) more hairy within—*brevidens*, *illustris*.

Tarsi more densely pubescent—*ambigua*, *pubipes*, *thoracica dubia*.

Claws longer or differently toothed—*schaefferi*, *anxius*, *plani-dens* (probably). There is a slight tendency for the claws to be a little stouter in the females generally.

The male genitalia are quite simple so far as examined, while in the female they are entirely membranous and therefore useless for comparison. I have therefore not attempted systematic dissection, but leave this phase of the subject for the student who has the material and the time for its investigation.

The genus is very widely dispersed in North America, and occurs in every part of our territory; it reaches its maximum development, however, in the warmer and dryer regions of the Sonoran province. Of the 95 species recognized in the present paper, 50 occur in New Mexico and Arizona, while Arizona alone possesses 38. Three species only—*tristis*, *sordida* and *liberta*—are known from Quebec and Ontario, while from western British America there are but four thus far recorded, viz.: *brevicollis*, *obscura*, *residua* and *subangulata*. All of these are Rocky Mountain species, and with the exception of *obscura*, none of them has been found at any considerable distance from our northern boundary. *Obscura* has been collected by Mr. Frederick Knab in the Saskatchewan region, and the types of *tristis* were taken in latitude 54°.

Coming to our own territory, it will be interesting to present in list form the species occurring in a considerable number of States. These lists will not only be useful to the student of distribution, but will also show at a glance the species which the collector may expect to find in any given locality. Starred species are known only from the region indicated.

## NEW ENGLAND.

<i>atlantis</i>	<i>sordida</i>
<i>liberta</i>	<i>rugosioides</i>
<i>tristis</i>	

Three of these species have long been known from New England. *Atlantis* has heretofore been confused with *tristis* in most collections. The standing of *rugosioides* is doubtful, and it will very likely prove to be only an aberrant *sordida*.

## NEW JERSEY — PENNSYLVANIA.

<i>atlantis</i>	<i>frondicola</i>	<i>bidentata</i>
<i>liberta</i>	<i>harperi</i>	<i>excavata</i>
<i>sordida</i>		<i>subcostata</i>
<i>tristis</i>		

Here are all the New England species—*rugosioides* excepted—plus two others, which are more or less common residents of this region. The species in the last column are South Atlantic Coast forms whose occurrence so far north is exceptional, or perhaps accidental.

## WASHINGTON, D. C.

<i>atlantis</i>	<i>frondicola</i>
<i>liberta</i>	<i>harperi</i>
<i>sordida</i>	
<i>tristis</i>	

## THE CAROLINAS AND GEORGIA.

<i>liberta</i>	<i>excavata</i>
<i>sordida</i>	<i>frontalis</i>
<i>rugosioides</i>	* <i>densicollis</i> (S. C.)
<i>frondicola</i>	<i>subcostata</i>
<i>harperi</i>	<i>bidentata</i> (Ga.)
	<i>languida</i> (Ga.)

## FLORIDA.

<i>harperi</i>	<i>bidentata</i>
<i>excavata</i>	<i>subcostata</i>
<i>frontalis</i>	* <i>rufa</i>
	<i>languida</i>

## ALABAMA.

*frondicola*  
*harperi*  
*subcostata*

## LOUISIANA.

*frondicola*  
*harperi*  
*excavata*  
*lengii*

## WESTERN PENNSYLVANIA.

*frondicola*  
*liberta*

## OHIO (Cincinnati).

*frondicola*  
*harperi*

## MICHIGAN.

*sordida*  
*tristis*  
*harperi*

## ILLINOIS.

*frondicola*  
*harperi*  
*\*cephalotes* (So. Ill.)

## IOWA.

*frondicola*  
*harperi*  
*liberta*

## MISSOURI.

*frondicola*  
*harperi*  
*bowditchi*

## KANSAS.

*tristis*  
*frondicola*  
*harperi*

*basalis*  
*truncatula*

*haydenii*  
*subangulata* var.

If there is no error in locality, this must represent the extreme western limit of *tristis*. *Truncatula* is more abundant in Texas, while *haydenii* and *subangulata* are at the eastern limit of their range.

## TEXAS.

*\*acerba*  
*ænea*  
*belfragei*  
*\*beyeri*  
*\*brevisetosa*  
*\*curvaticeps*  
*\*dubia*  
*\*errans*  
*frondicola*

*harperi*  
*lengii*  
*\*maura*  
*mentalis*  
*\*muricata*  
*\*pinguescens*  
*\*puberula*  
*\*pubipes*  
*punctata*  
*\*punctipennis*

*\*schaefferi*  
*\*sparsesetosa*  
*subangulata* var.  
*subcostata*  
*sulcatula*  
*\*texana*  
*\*thoracica*  
*truncatula*  
*\*villosa*

## NORTHERN ROCKIES, MONTANA, IDAHO, WYOMING.

<i>brevicollis</i>	<i>residua</i> (Id.)
<i>haydenii</i>	<i>tenebrosa</i>
<i>obscura</i>	

## COLORADO.

<i>basalis</i>	<i>obscura</i>
<i>brevicollis</i>	<i>parallela</i>
<i>carbonata</i>	<i>parvicollis</i>
<i>conformis</i>	<i>rufiola</i>
<i>haydenii</i>	

## ARIZONA.

<i>abnormis</i>	<i>*costulata</i>	<i>obscura</i>
<i>*ambigua</i>	<i>*dentella</i>	<i>pacata</i>
<i>*angularis</i>	<i>*fissilabris</i>	<i>*planidens</i>
<i>anxius</i>	<i>*fossipalpa</i>	<i>*popino</i>
<i>*arcuata</i>	<i>haydenii</i>	<i>*pumila</i>
<i>*arizonica</i>	<i>*illustris</i>	<i>rufiola</i>
<i>brevicollis</i>	<i>*ingenua</i>	<i>*semifoveata</i>
<i>*brevidens</i>	<i>knausii</i>	<i>subangulata</i> var.
<i>carbonata</i>	<i>levicoxa</i>	<i>sulcatula</i>
<i>*chiricahuæ</i>	<i>macronympha</i>	<i>*tarsalis</i>
<i>conformis</i>	<i>marginicollis</i>	<i>tenuis</i>
<i>*connata</i>	<i>*misella</i>	<i>trementina</i>
<i>corvina</i>	<i>*mærens</i>	

## UTAH AND NEVADA.

<i>anxius</i>	<i>obscura</i> v. <i>compacta</i>
<i>*insignis</i>	<i>obscura</i> v. <i>prominens</i>
<i>knausii</i>	<i>sierræ</i>
<i>levicoxa</i>	<i>subangulata</i> v. <i>californica</i>
<i>mærens</i>	<i>tenebrosa</i>

## CALIFORNIA.

<i>brevicollis</i>	<i>pacata</i>
<i>corvina</i>	<i>sierræ</i>
<i>*fimbriata</i>	<i>subangulata</i> v. <i>californica</i>
<i>levicoxa</i>	<i>tenebrosa</i>
<i>mærens</i>	<i>tenuis</i>

## NEW MEXICO.

<i>abnormis</i>	* <i>levicosta</i>	<i>punctata</i>
* <i>atrátula</i>	<i>macronycha</i>	<i>rufiola</i>
<i>belfragei</i> v. <i>sinuata</i>	<i>marginicollis</i>	<i>subangulata</i> var.
<i>brevicollis</i>	<i>mentalis</i>	<i>sulcatula</i>
<i>carbonata</i>	<i>obscura</i> v. <i>prom-</i>	<i>trementina</i>
* <i>cribrulosa</i>	<i>inens</i>	<i>truncatula</i>
<i>haydenii</i>	<i>parallela</i>	
* <i>hispidá</i>	<i>parvicollis</i>	
	<i>popino</i>	

None of these belong to the true coast fauna, and with the exception of *subangulata* none have occurred west of the Sierras.

## WASHINGTON AND OREGON.

<i>brevicollis</i>	<i>subangulata</i>
<i>obscura</i>	<i>tenebrosa</i>

Further collecting is almost sure to add to the lists of almost any of the above western localities, but little or no increase can be expected in the Atlantic district. Thirty-four species are given in the "Biologia" as inhabiting Mexico and Central America, but this is surely only a fraction of the species occurring there. Whether any of the species described from our southwestern region are identical with the Mexican ones is not possible to say with certainty, but the probability is not very great.

In concluding these preliminary remarks I wish to thankfully acknowledge the very ready and generous response from all correspondents to requests for specimens or information. The very large material of the National Museum and Horn collections have been loaned for study, and there has also been placed in my hands the material contained in most of the larger private collections of this country, viz.: that of Messrs. Blanchard, Bowditch, Leng, Beyer, Schaeffer, Liebeck, Dury, Wickham, Knaus, Fenyés, Blaisdell and Van Dyke. Finally, to Mr. Samuel Henshaw I am under renewed obligations for permission to study the LeConte types at the Cambridge Museum, without which anything like satisfactory progress would have been impossible.

## TABLE OF SPECIES.

- Upper surface pubescent or hairy.....2.
- Upper surface glabrous, or virtually so.....7.
2. Head with occipital smooth space, sides of prothorax sinuate anteriorly, the front angles prominent and acute, punctuation of elytra extremely dense.
- Pubescence of upper surface fulvous, dense and moderately long on the head and prothorax, shorter on the elytra posteriorly.
1. **sordida.**
- Pubescence of upper surface sparser, grayish, erect, but excessively short throughout.....2. **rugosiodes.**
- Head without occipital smooth space, sides of prothorax not or scarcely sinuate anteriorly, the angles not at all, or but slightly prominent; punctuation of elytra normal.....3.
3. Labrum deeply impressed or bilobed, pubescence long, fine, erect; ventral segments margined at sides—at least in part; striae punctures of elytra nude.
- Ventral segments completely margined; clypeal angles well defined but not dentiform, there being no distinct external sinuation; prothorax rather densely punctate and somewhat uneven; size smaller (6-8 mm.), color varying from black to brown.....3. **mimosæ.**
- Ventral segments 1-3 margined at sides; clypeal angles dentiform or subdentiform, the external sinuation distinct; prothorax less closely punctate, the surface not evidently uneven; size usually larger (7-10 mm.), color brown or reddish brown.
4. **popino.**
- Clypeal angles not dentiform, the margin squarely truncate at middle with faint trace of median sinuation but no external sinus; prothorax still less closely but more coarsely punctate; pubescence sparser; length 8 mm.; color brown.
5. **cribrulosa.**
- Labrum feebly or moderately arcuate emarginate, pubescence short, ventral segments not margined at sides except in *arizonica*.....4.
4. Clypeal angles dentiform, the external sinuation strong; striae punctures of elytra setiferous, like those of the intervals.
- Pubescence erect; thorax widest near the middle; size smaller (7-8 mm.).....6. **arizonica.**
- Pubescence recumbent; thorax widest at base; size larger (11-12 mm.).....7. **bowditchi.**
- Clypeal angles not dentiform, no external sinuation.....5.
5. Tooth of claw subapical, but little shorter than the superior portion of the claw.



- Pubescence erect or suberect; prothorax widest a little before the base; upper tooth of front tibia nearly twice as distant from the base as from the apical tooth; stria punctures of elytra setiferous.
- Prothorax coarsely punctured, the punctures fully as coarse as those of the elytra; clypeus truncate or truncato-emarginate .....8. **villosa.**
- Prothorax finely more densely punctured, the punctures finer than those of the elytra; clypeus arcuate or more narrowly truncate.....9. **puberula.**
- Pubescence much inclined; prothorax widest just before the middle; upper tooth of front tibia midway between the base and apex; clypeal margin arcuate or subtruncate at middle, the angles rounded; stria punctures of elytra nude .....10. **brevisetosa.**
- Tooth of claw post median in position, but much shorter than the superior portion of the claw; stria punctures nude.....6.
6. Clypeal suture more or less distinct, hairs of upper surface longer and more numerous.
- Punctuation of upper surface coarser and denser, the elytral costæ scarcely evident; abdomen coarsely closely punctate throughout; first joint of hind tarsus nearly or quite as wide as long.....11. **muricata.**
- Punctuation of upper surface less coarse and dense; elytral costæ better defined; abdomen sparsely and finely punctate at middle, coarsely and closely at sides; basal joint of hind tarsus nearly twice as long as wide.....12. **hispida.**
- Clypeal suture wanting, hairs of upper surface very short and sparse, elytral costæ distinctly defined.
13. **sparsesetosa.**
7. Labrum broadly arcuately emarginate, rarely more deeply impressed (*mærens*, *peninsularis*), mentum not excavated in front.....8.
- Labrum deeply divided (bilobed), mentum excavated in front.
- Front distinctly triangularly impressed, ventral segments more or less tuberculate; basal joint of front tarsi in the male strongly dilated, much wider than the second.
14. **knausii.**
- Front feebly or scarcely impressed, ventral segments not tuberculate, but with a series of short parallel rugæ on segments 2-4 in the male; basal joint of front tarsus (male) not wider than the second.....15. **fissilabris.**
8. Mentum broadly convex or nearly flat, not at all concave, and at most but feebly declivous in front; transverse raised line either entirely absent or extremely faintly indicated.....9.

- Mentum horizontal, nearly flat posteriorly, becoming rather strongly concave in front, without trace of transverse ridge, the setæ at most short and inconspicuous, often wanting, thoracic angles usually impressed.....11.
- Mentum feebly oblique behind, strongly declivous in front, the declivity more or less concave from side to side, its margin posteriorly arcuate and convex, but without raised line (except feebly in *sierræ*); thoracic angles not impressed..12.
- Mentum horizontal or subhorizontal and nearly flat posteriorly, more or less declivous in front, the declivity margined by a more or less acute arcuate raised line and a row of erect setæ, the raised line sometimes rather ill defined or even obsolete (more especially so in *ingenua*, *lengii*, *basalis*, *pumila*, *angularis*, *misella*, and *tenuis*).....13.
9. Ungual tooth subapical, claws larger in the male, elytral costæ with more or less confused punctuation....16. **schaefferi**.
- Ungual tooth median or moderately post-median, claws not different in the sexes; elytral costæ each with a single row of punctures.....10.
10. Clypeus with sub-basal ridge or convexity extending from side to side, making the clypeal suture seem strongly impressed; mentum convex along the basal and lateral margins, not declivous in front, the transverse ridge absent and the accompanying setigerous punctures nearly or quite wanting; terminal joint of maxillary palpi fully, or more than three times as long as wide.....17. **mentalis**.
- Clypeus nearly flat, the basal ridge at most but feebly defined; mentum with transverse row of setigerous punctures (the setæ often in part wanting), in front of which the surface is feebly declivous.
- Form less robust, prothorax widest near the middle, tooth of claw only slightly post-median.
- Mentum broadly subconvex, scarcely declivous in front; front more finely and sparsely punctate than the clypeus.
18. **conformis**.
- Mentum more obviously declivous anteriorly; front and clypeus similarly punctate; clypeal margin more broadly reflexed.
19. **residua**.
- Form more robust, prothorax not or very slightly narrowed behind; tooth of claw more strongly post-median; terminal joint of maxillary palpus barely twice as long as wide.
20. **tenebrosa**.
11. Punctuation of upper surface rather dense.....21. **costulata**.
- Punctuation rather fine and much sparser.

Front angles of prothorax distinctly impressed, the hind angles also impressed, but usually less strongly; size large (12–14 mm.) .....22. **brevicollis**.

Front angles of prothorax a little impressed, the hind angles not obviously so; size smaller (9–10 mm.).

23. **semifoveata**.

Angles of prothorax not impressed; size smaller ( $8\frac{1}{2}$ – $10\frac{3}{4}$  mm.).

24. **parvicollis**.

12. Mentum without trace of acute transverse ridge; margin of declivity without erect setæ, at least at middle; hind thighs nearly or quite impunctate between the submarginal rows of setigerous punctures.

Anterior declivity of mentum beginning at apical two-fifths or one-third; tooth of claw nearly median in position.

Hind coxæ nearly or quite impunctate .....25. **levicoxa**.

Hind coxæ punctate, at least in outer half.

Prothorax with more or less distinct impressed line along the anterior margin; front angles rather prominent and acute; color red brown.....26. **haydenii**.

Prothorax without impressed apical marginal line; front angles not prominent.

Prothorax less coarsely and densely punctate, elytral punctuation less broadly confused; size smaller, color dark brown or black (Southern Arizona)..27. **dentella**.

Prothorax more coarsely and densely punctate, elytral punctuation more broadly confused, size larger, color rufoferruginous in the unique type (Salt Lake Desert).

28. **insignis**.

Anterior declivity of mentum beginning at the middle of its length; tooth of claw slightly, but obviously post-median.

29. **belfragei**.

Mentum with row of erect setæ along the summit of the declivity, the transverse arcuate raised line also indicated in *sierræ*; hind thighs irregularly punctate between the submarginal rows of punctures.

Form stouter, less than twice as long as wide.

Ungual tooth subapical in position, punctuation beneath sparser and finer (Atlantic region) .....30. **atlantis**.

Ungual tooth only slightly post-median; punctuation beneath much coarser and closer (California and Nevada).

31. **sierræ**.

Form oblong, parallel, more than twice as long as wide (Rocky Mountains of New Mexico and Colorado).32. **parallela**.

13. Thoracic angles not impressed.....14.

Thoracic angles more or less impressed.

- Impressions within the thoracic angles well marked, hind thighs very sparsely and finely punctate at middle; size smaller; (Rocky Mountain region).....33. **obscura**.  
var. **prominens**, var. **compacta**.
- Impressions within the thoracic angles not very distinct; hind thighs more coarsely and conspicuously punctate at middle; size larger (Atlantic region).  
Prothorax more finely and evenly punctate; color black, without trace of metallic lustre.....34. **tristis**.  
Prothorax more coarsely and quite irregularly punctate; elytra often with violaceous lustre.....35. **liberta**.
14. Sides of prothorax not distinctly bisinuate (except in some examples of *densicollis* and *fossipalpa*).....15.  
Sides of prothorax more or less bisinuate, the anterior situation slight or wanting in some examples of *rufa*.  
Size larger (9-11 mm.), punctuation of head and thorax finer and sparser; pygidium with shallow median longitudinal impressed line; prosternal carina double...36. **subcostata**.  
Size smaller (8-9 mm.); punctuation of head and prothorax relatively coarser and closer; pygidium not impressed; prosternal carina single.....37. **rufa**.
15. Front with at most a very broad and feeble post-clypeal convexity, usually flat or uniformly convex.....17.  
Front with moderate or strong post-clypeal convexity.....16.
16. Post-clypeal convexity more or less impressed or interrupted at middle; elytra coarsely densely punctate; clypeal margin rotundate. Atlantic region.  
Basal margin of thorax not or scarcely impressed toward the hind angles.....38. **frontalis**.  
Basal margin of thorax rather strongly impressed, especially toward the sides.  
Punctuation of thorax rather sparse, at least at middle, the punctures separated by from one to two times their own diameters.....39. **excavata**.  
Punctuation of thorax extremely dense and rugulose.  
40. **densicollis**.
- Post-clypeal convexity not impressed at middle, the surface behind the convexity feebly or distinctly biimpressed; elytral punctuation moderate; clypeal margin feebly sinuate at middle (Rocky Mountain region).  
Surface more shining, sides of prothorax more strongly rounded, clypeus more advanced, elytral costæ with the usual single series of finer punctures. ....41. **subangulata**.  
Surface less shining; sides of prothorax less strongly rounded, clypeus less prominent, elytral costæ almost devoid of punctures.....42. **atrata**.

17. Metasternum normally long, elytra not connate, body winged ...18.  
 Metasternum short, its length between the coxæ not or but little longer than the length of the second ventral segment; elytra apparently connate, wings probably undeveloped.  
 Robust, much less than twice as long as wide, claws rather small, the tooth subapical.....43. **connata**.  
 Elongate, rather more than twice as long as wide, the claws slender and unusually long, the tooth sub-median.  
 44. **macronycha**.
18. Ungual tooth post-median in position, usually strongly so.....19.  
 Ungual tooth short, nearly perpendicular to the claw and almost exactly median in position.  
 Clypeus rotundate, body stouter, oblong ovate.  
 Prothorax more finely not very densely punctate, disk with two confluent impressions which are sometimes wanting or feebly indicated; margin of body not conspicuously fimbriate; hind tarsi moderately slender.....45. **pacata**.  
 Prothorax coarsely densely punctate, disk not impressed, side margins of thorax and elytra fimbriate with long hairs; hind tarsi stout .....46. **fimbriata**.  
 Clypeus sinuate at middle; form oblong, moderately elongate.  
 Sides of thorax not perceptibly sinuate, head but slightly more than half as wide as the thorax, impression of terminal joint of maxillary palpi of normal size, and not extending beyond the middle.....47. **brevidens**.  
 Sides of thorax distinctly sinuate, both before and behind; head about three-fifths as wide as the prothorax; impression of terminal joint of maxillary palpi deep and extending almost from base to apex.....48. **fossipalpa**.
19. Clypeal margin more or less sinuato-emarginate at middle, sometimes very feebly or barely visibly so (*corvina*, *carbonata*, *rufiola*, *thoracica*), the angles usually broadly rounded (less broadly so in *pubipes*).....20.  
 Clypeal margin convex in outline from side to side, or with the middle truncate or subtruncate for a short distance, but not at all sinuate (except in occasional specimens of *harperi*).....34.  
 Clypeal margin more or less distinctly angulate each side of the median sinuation or truncation (except in some examples of *polita*).....39.
20. Ungual tooth post-median, but distinctly shorter than the superior portion of the claw.....21.  
 Ungual tooth apical or subapical, the claw having the appearance of being cleft at or a little behind the tip, the inner portion (tooth) being nearly always broader and more or less obliquely truncate.....22.

21. Sides of prothorax strongly subangularly rounded at middle, distinctly sinuate posteriorly, and slightly so anteriorly; lower edge of front and hind femora, the front and hind tibiæ within, and the median line within densely hairy (male) .....49. **illustris**.

Sides of prothorax less strongly rounded at middle, not sinuate either before or behind, vestiture of legs and abdomen normal.

Clypeal margin broadly reflexed.

Clypeus more deeply sinuate, the suture distinctly impressed, pygidium without impressed line, elytra usually but slightly wider than the thorax.....50. **beyeri**.

Clypeus less deeply sinuate, the suture obliterated at middle; pygidium with median impressed line; form usually stouter, less parallel, the elytra behind the middle more obviously wider than the prothorax....51. **sulcatula**.

Clypeal margin very narrowly reflexed.

Labrum deeply emarginate, punctuation of thorax moderate.

52. **mœrens**.

Labrum broadly emarginate, punctuation of thorax unusually coarse.....53. **punctipennis**.

22. Sides of prothorax strongly arcuate, much wider at or slightly behind the middle than at base.....23.

Sides of prothorax moderately arcuate, very slightly or not at all narrowed behind the middle.....26.

23. Tarsi not hairy beneath.....24.

Tarsi distinctly hairy beneath in the male, less evidently so in the female.....25.

24. Claws similarly toothed on all the feet.

Clypeal margin very faintly or scarcely sinuate at middle; front angles of prothorax not at all prominent, upper tooth of front tibiæ slightly post-median.

Prothorax lightly but quite evidently longitudinally sulcate at middle; elytral punctuation confused only on the subsutural interspace; size larger (12 mm.), color black.

54. **corvina**.

Prothorax without median sulcus, size much smaller (6-7.5 mm.).

Prothorax finely not closely punctate; elytra not closely punctate, the punctures forming nearly regular lines except in the subsutural interspace.

Black or brownish black, prothorax larger, usually more than one-third the length of the elytra.

55. **carbonata**.

Rufotestaceous (castaneous in a form doubtfully referred), prothorax smaller, less than one-third the length of the elytra.....56. **rufiola**.

- Prothorax more closely and less finely punctate, elytral punctuation coarse, dense and much confused, except for the geminate striae.....57. **acerba**.
- Clypeal margin more evidently but very broadly sinuato-emarginate or sinuato-truncate at middle; front angles of thorax slightly prominent; upper tooth of front tibiae distinctly ante-median; color rufoferruginous.....58. **ingenua**.
- Claws not all similarly toothed (at least in one sex), tooth of the outer claw of the middle tarsi very large, laminiform, with acute apex.....59. **planidens**.
25. Clypeal margin moderately to rather strongly arcuato-emarginate, the angles rather abruptly rounded; front angles of thorax not prominent; upper tooth of front tibiae sub-median; color brown or piceous.....60. **ambigua**.
26. Clypeus tumid, front rather deeply subtriangularly impressed at middle.....61. **cephalotes**.
- Clypeus flat, or nearly so.....27.
27. Punctures of head close, usually nearly or quite in mutual contact and often densely crowded.....28.
- Punctures of head well separated, usually by at least their own diameters.
- Prothorax with apical marginal impressed line, scutellum normal in size and without circumjacent impression; tarsi not pubescent beneath.....62. **marginicollis**.
- Prothorax without apical impressed line; scutellum small and with a surrounding impression; tarsi densely pubescent beneath.....63. **pubipes**.
28. Punctures of elytral disk confused only in the subsutural interspace, elsewhere forming nearly regular rows.
64. **trementina**.
- Punctures of elytral disk broadly confused, except for the usual geminate striae.....29.
29. Interstices of elytral punctures numerous finely punctulate, color black, size large (14 mm.).....65. **punctulata**.
- Interstices of elytral punctures nearly or quite devoid of minute punctuation.....30.
30. Front between the upper portions of the eyes distinctly bi-impressed.....31.
- Front not impressed.....32.
31. Labrum deeply impressed; prothorax rather densely punctate; dark brown.....66. **peninsularis**.
- Labrum broadly impressed.
- Front claws in male cleft, middle and hind claws toothed; all claws toothed in female; prothorax very densely punctate; color brown.....67. **anxius**.
- Claws similarly toothed in the sexes; prothorax finely sparsely punctate; color black.....68. **anthracina**.



32. Upper tooth of front tibia distinctly ante-median in position; hind tarsi scarcely or but very slightly longer than the tibiæ.  
 Lateral margin of clypeus with a distinct angulation just before the eye, which is at least as prominent as the visible portion of the eye; coarser punctuation at sides of metasternum extending posteriorly barely half way to the median line; color black ..... 69. **maura**.  
 Lateral margin of clypeus with at most a very feeble prominence close to the eye, which is less prominent than the eye itself; dense lateral punctuation of the metasternum extending fully three-quarters the distance from the side margin to the median line; color brown.  
 Lateral margin of clypeus with a minute angulation near the eye; form more robust ..... 70. **pinguens**.  
 Lateral margin of clypeus devoid of ante-ocular prominence; form less robust.  
 Basal margin of thorax at most feebly impressed laterally; punctuation denser; upper tooth of front tibiæ strongly ante-median ..... 71. **frondicola**.  
 Basal margin of thorax quite strongly impressed; the impression narrowed or subinterrupted at middle; punctuation less dense; upper tooth of front tibiæ only slightly ante-median ..... 72. **basalis**.  
 Upper tooth of front tibia median; hind tarsi in the male much longer than the tibiæ and more hairy beneath ..... 33.  
 33. Mental ridge feeble or obsolete; prothorax more than one-half wider than long; punctuation rather coarse and sparse, color blackish, usually with trace of æneous surface lustre.  
 ..... 73. **lengii**.  
 Mental ridge well developed; prothorax less than one-half wider than long; punctuation fine and dense; color ferruginous.  
 ..... 74. **thoracica**.  
 34. Transverse arcuate ridge of mentum well defined ..... 35.  
 Transverse arcuate ridge of mentum ill defined—small species ..... 38.  
 35. Base of prothorax without marginal impressed line ..... 36.  
 Base of prothorax distinctly impressed along the margin ..... 37.  
 36. Antennæ 10-jointed, head not impressed over the eyes; hind angles of thorax obtuse.  
 Front and clypeus closely or densely punctate.  
 Prothorax distinctly wider at middle than at base; sides rather strongly rounded ..... 75. **arcuata**.  
 Prothorax not narrowed behind the middle, widest at or near the base.  
 Upper tooth of front tibia about midway between the apical tooth and the base; tarsi more hairy in the male; punctuation of upper surface dense ..... 76. **dubia**.

Upper tooth of front tibia about two-thirds as far from the apical tooth as from the base, tarsi not (?) hairy in the male; punctuation of upper surface moderate.

77. **curvaceps.**

Front sparsely, clypeus more closely but not densely punctate.

78. **bidentata.**

Antennæ 9-jointed, head usually with an elongate impression above each eye; prothorax widest at base, the sides subsinuate before the basal angles, which are a little acute as viewed from above.....79. **abnormis.**

37. Basal marginal line of thorax not or scarcely narrowed at middle; transverse raised line of mentum at about the anterior third.....80. **harperi.**

Basal marginal line of thorax distinctly narrowed or subinterrupted at middle; raised line of mentum at or about the middle of its length.....81. **texana.**

38. Pale rufotestaceous, clypeal margin arcuate from side to side (Florida).....82. **languida.**

Ferruginous or brown, clypeal margin truncate at middle, size still smaller (Arizona). ....83. **pumila.**

39. Tarsal joints clothed beneath toward their apices with dense fulvous hair; terminal joint of maxillary palpus dilated in the male; clypeal angles prominent, subdentiform, the external sinuation either feeble or distinct; sides of prothorax broadly subangulate at middle, convergent and nearly straight in front, parallel and nearly straight posteriorly .....84. **tarsalis.**

Tarsal joints not conspicuously hairy beneath; maxillary palpi not differing in the sexes (so far as known).....40.

40. Elytral punctuation confused on all the intercostal spaces (except in some examples of *confusa*); mental declivity usually distinctly margined behind, size somewhat larger, color rufotestaceous to piceous.....41.

Elytral punctuation confused only on the subsutural interspace, elsewhere arranged in nearly regular series; mental declivity feebly defined, not margined behind; propygidium without apical groove; size smaller, color rufotestaceous. 43.

41. Elytra without minute alutaceous sculpture, the surface like that of the prothorax polished and strongly shining..85. **polita.**

Elytra with fine or minute alutaceous sculpture .....42.

42. Clypeus very broadly reflexed, the angles not prominent but with a well marked external sinuation; front tibiæ very broad and stout, the upper tooth strongly post-median in position; prothorax widest at or even slightly in advance of the middle.....86. **errans.**

Clypeal angles rather sharply defined, but not prominent or dentiform, without or with but slight trace of external sinuation; ventral segments margined at sides (except in *chiricahuæ*).

Prothorax widest near the base, sides broadly arcuate.

87. **truncatula.**

Prothorax widest at or but little behind the middle.

Eyes moderate; clypeal margin feebly or scarcely sinuate between the angles; color normally piceous brown.

88. **punctata.**

Eyes large, clypeal margin more evidently sinuate between the angles, which are in consequence more sharply defined; color rufotestaceous.....89. **chiricahuæ.**

Clypeal angles prominent and subdentiform, the external sinuation distinct; ventral segments not margined at sides.

Rufotestaceous, punctuation finer and less dense.

Eyes separated on the front by a distance fully five times as great as the width of the eye as seen from the front; elytral costæ almost completely impunctate, except on the declivity; prothorax strongly transverse.....90. **levicosta.**

Eyes separated on the front by a distance which at most but slightly exceeds three times their own width; elytral costæ with the usual series of fine punctures; prothorax moderately transverse.

Front rather strongly impressed or concave at middle; eyes separated on the front by two to three times their own width; prothorax more than one-half wider than long; elytra one-quarter longer than wide, and two and one-half times as long as the prothorax.....91. **confusa.**

Front evenly and broadly convex, eyes separated on the front by three and one-third times their own width; prothorax slightly less than one-half wider than long, elytra one-half longer than wide and three times as long as the prothorax.

92. **angularis.**

Black, elytra brownish, upper surface with distinct viridiæneous lustre; punctuation of elytra coarser and denser.

93. **ænea.**

43. Interocular width of front about three times the width of the eye; terminal joint of maxillary palpi three-quarters the length of the antennal club; prothorax coarsely punctate; abdomen moderate punctate.....94. **misella.**

Interocular width of front about six times the width of the eye; terminal joints of maxillary palpi nearly as long as the antennal club; prothorax not coarsely punctate, ventral segments with very few punctures.....95. **tenuis.**

### 1. *D. sordida* Say.

Blackish brown, more rarely reddish brown, clothed above with short erect or suberect hair, which is longer, denser, and more brightly fulvous on the head, prothorax, and around the scutellum; shorter and more grayish elsewhere on the elytra. Punctuation rather fine but very dense throughout, the elytral costæ obsolete or but feebly indicated. Clypeus broadly sinuate emarginate, head with transverse occipital smooth space. Sides of prothorax sinuate in front, the angles prominent and acute; hind angles distinct and nearly rectangular as viewed from above. Length 10–12 mm.; width 5.1–6.2 mm.

This well-known species needs no more extended description. The uniformly dense punctuation of the elytra, as well as the occipital smooth space are peculiar to this and the following species. There appear to be no secondary sexual characters aside from the somewhat stouter hind thighs of the female.

*Sordida* is most frequently taken in the maritime regions of the North Atlantic States but seems nowhere very abundant. The following States are represented in the material at hand: Maine, New Hampshire, Massachusetts, New Jersey, Maryland, Virginia, North Carolina, Michigan (Marquette). LeConte gives also Pennsylvania and Georgia.

### 2. *D. rugosioides* Schf.

Almost precisely like *sordida*, except that the pubescence of the head and prothorax is not longer than that of the elytra, being exceedingly short and grayish in color throughout.

The type is from Hampton, New Hampshire. Two examples sent me by Mr. Leng labeled "So. Pines, N. C." answer well Schaeffer's description. In one of these there are large discal impunctate areas on the pronotum, which are scarcely at all indicated in the other. The species is not represented in any other of the numerous collections sent me, and notwithstanding its different appearance, it is not unlikely that it will prove to be only a variety or aberration of *sordida*.

### 3. *D. mimosæ* n. sp.

Variable in color from reddish brown to dark brown or nearly black, entire upper surface clothed rather plentifully with fine erect hairs averaging in length about two-thirds or three-quarters the width of the scutellum; prothorax and elytra minutely alutaceous. Labrum

very deeply impressed. Mentum horizontal, scarcely declivous in front, a transverse row of long setæ, but without trace of accompanying ridge except in rare instances. Head densely punctate; clypeal margin truncate or slightly sinuate at middle, the angles rather sharply defined but obtuse, without or with only a slight external sinuation; clypeal suture distinct at sides, usually faint or subobsolete at middle; front broadly feebly impressed at middle, behind the clypeal suture. Prothorax three-fifths wider than long, widest at or just behind the middle, where the sides are rather strongly rounded; margin often with a slight sinuation behind the front angles, the latter distinct but not prominent; hind angles obtuse but well defined; surface densely but usually a little unevenly punctured. Elytra one-third wider than the prothorax and about two and three-quarter times as long, wider behind, punctuation rather dense throughout, confused between the pairs of geminate striæ which inclose the very faint discal costæ, but arranged in nearly regular series at the sides. Beneath sparsely hairy, metasternum rather coarsely and closely punctate at sides; abdomen moderately punctate and with a sharply defined raised line separating the ventral and dorsal surfaces. Propygidium with well defined apical marginal groove. Ungual tooth subapical, broadly truncate at tip. Length 6.2–8 mm.; width 3.4–4.2 mm.

This species occurs in southeastern Arizona. Hubbard and Schwarz found it plentiful at Oracle and in the Santa Rita Mountains in June and July on "*Mimosa* sp." It was taken by Mr. Beyer in the Rincon Mountains, and is present in several other collections with the simple label "Arizona." Though very closely related to the following species, it is separated readily enough with a little care by the tabular characters.

There is in the LeConte collection a specimen of this species bearing label "*popino* type" in Casey's handwriting. I have no doubt, however, that this was inadvertently mixed with his specimens of the following species, which is the one to which his description best applies and of which the type in his own collection is probably a representative.

#### 4. *D. popino* Csy.

Form and vestiture as in *mimosæ*; color reddish brown to castaneous. Labrum deeply emarginate (bilobed). Clypeal margin broadly sinuate at middle, the limiting angles rather prominent and dentiform, the sinuation on the outer side usually well marked. Punctuation similar to that in the preceding species but somewhat less dense; alutaceous

sculpture of prothorax less evident and sometimes nearly or quite absent. Elevated line separating ventral and dorsal segments distinct basally, disappearing on the last two segments. Propygidial apical groove feeble. Length 7-10 mm.

Specimens at hand are all from southern Arizona (Tucson, Nogales, Florence, Oracle, Santa Rita and Huachaca Mountains), except two in the Horn collection which bear label "N. M."

Very similar to *mimosæ* but larger and apparently always of some shade of reddish brown in color, while the large majority of *mimosæ* are blackish. The prominent clypeal angles and less dense punctuation are also fairly characteristic. From all our other hairy species, except *mimosæ* and *cribrulosa*, *popino* is at once distinguished by the bilobed labrum.

#### 5. *D. cribrulosa* Lec.

Brown, sparsely hairy; labrum deeply impressed. Mentum feebly declivous in front from about the apical two-fifths, posterior margin of declivity slightly prominent and with the usual setæ. Clypeus squarely truncate in front with faint trace of median sinuation, not visibly sinuate at sides. Head densely punctate; prothorax quite coarsely and sparsely so, the punctures separated by two or three times their own diameters at middle, and by their own diameters at sides. Elytra coarsely rather closely punctate, the punctures of the costæ also strong and close. Punctuation beneath rather sparse. Length 8 mm.; width 4.5 mm.

*Habitat*.—"Frontera on the Rio Grande."

The unique type in the LeConte collection evidently represents a hairy species, though pretty completely denuded. The color, form, size and sculpture strongly suggest *popino*, with which species it also appears to agree in having the dorsal and ventral portions of the first three abdominal segments separated by a raised line; the clypeus differs from *popino* in being squarely truncate, the angles not at all dentiform; the thoracic punctuation is, I think, a little coarser and sparser, and the pubescence appears to be less plentiful, though of this it is not possible to speak with certainty. None of these characters are of much weight and it is not unlikely that the two are forms of a single species.

**6. *D. arizonica* Schf.**

Oblong, a little wider behind, dark brown, moderately shining, prothorax and elytra minutely alutaceous, each elytral puncture bearing a short suberect hair, averaging in length about one-sixth the width of the scutellum. Labrum distinctly arcuate emarginate, the lateral angles a little reflexed and thus more prominent than usual. Mentum with transverse row of five to seven setæ, the accompanying raised line feeble or obsolete. Head and clypeus closely punctate, the latter reflexed, emarginate at middle, angles dentiform, the outer sinuation short but strong; clypeal suture straight, immediately behind it a faint transverse elevation in some specimens. Prothorax a little less than twice as wide as long, widest just behind the middle, sides moderately strongly arcuate, scarcely sinuate anteriorly, but faintly so before the base angles, which are obtuse but defined; front angles evidently acute but not prominent; disk finely, evenly, closely but not densely punctate, the lateral foveæ small. Elytra one-half wider and three times as long as the prothorax, punctures much coarser and about equally close, confused between the first costa and the suture, somewhat irregular between the first and second costæ, externally in nearly regular series; first costa distinct, second feeble, all nearly devoid of punctures. Beneath moderately punctate; abdomen with lateral raised line separating the dorsal and ventral portions of the segments; propygidial groove distinct. Front tibiæ tridentate, the upper tooth nearer the second than to the base, the middle tooth nearer the apical one. Claws cleft subapically, the lower part a little stouter and obliquely truncate. Length 7-8 mm.; width 3.75-4.2 mm.

The home of this species is again the mountains of south-eastern Arizona. Schaeffer's type was taken in the Huachuca Mountains, and a specimen taken by Dr. Skinner at the same time bears the label "Carr Cañon, August, 1905." A specimen in the National Museum collection is from Fort Grant, July 14.

In form, size, mental, abdominal and unguar characters this species is closely in accord with *mimosæ*. Aside from the non-bilobed labrum, it differs in its shorter elytral pubescence, glabrous thorax, and the pronounced disparity in size of the thoracic and elytral punctures; the clypeal angles are more strongly dentiform than in *popino*.

**7. *D. bowditchi* n. sp.**

Piceous brown, tarsi paler, upper surface densely finely punctate, with very short pale subrecumbent pubescence. Mentum declivous in front, arcuate ridge and row of setæ distinct; labrum concave.



Head densely punctate, clypeal suture moderately impressed, nearly straight, clypeal margin broadly sinuate at middle, the lateral angles dentiform, the external sinuation distinct. Prothorax two-thirds wider than long, sides nearly straight and subparallel in basal two-fifths, thence more distinctly arcuate and convergent; not at all sinuate in front, the angles a little obtuse but not rounded; punctuation fine, dense and evenly distributed, lateral foveæ indistinct. Elytra one-half longer than wide, but slightly wider than the prothorax at base, gradually wider posteriorly, three times as long as the thorax and one-third wider at point of greatest width; first discal costa distinct, second evident but feeble; intercostal punctuation completely confused, the punctures not coarser and but slightly less dense than on the thorax; discal costæ with a somewhat irregular line of punctures, which are scarcely finer than those of the interspaces and about as closely placed. Beneath as closely and a little more coarsely punctate, sparsely pubescent. Upper tooth of front tibia much nearer the apical tooth than to the base. Claws cleft at tip, the lower portion slightly shorter and subtruncate. Length  $11\frac{1}{2}$ –12 mm.; width 6.2–6.4 mm.

*Habitat*.—Missouri.

Two specimens of this fine species have been sent by Mr. Bowditch, to whom it gives me pleasure to dedicate it. The sexual characters are remarkably pronounced for the genus. In the male the terminal joint of the maxillary palpus is evidently broader and obliquely truncate, the antennal club a little larger and joints 1–4 of the front and middle tarsi are furnished beneath with dense pads of yellow pubescence. The hind femora in the female are stouter than in the male.

This species is not represented in any other collection which I have seen and the fact that the angulate or dentate clypeus and pubescent male tarsi occur elsewhere only in a few species from our extreme southern boundary and are more characteristic of the Mexican fauna than our own, suggest a possible error in locality. It appears to be quite distinct from anything mentioned in the "Biologia."

8. *D. villosa* n. sp.

Castaneous, surface polished without trace of fine alutaceous sculpture; punctuation coarse and dense, the punctures of about equal size throughout and each bearing a suberect hair about one-third or one-fourth as long as the scutellar width. Mentum declivous in front, the declivity limited by a strong arcuate ridge and accompanying

erect setæ. Head densely cribrate punctate, clypeus moderately widely reflexed, broadly emarginate or subtruncate, the angles obtuse but fairly well defined with slightly rounded vertices; front nearly flat without elevations or impressions. Prothorax nearly or quite twice as wide as long, widest near the base, sides very broadly rounded and a little convergent in front, angles all obtuse; disk very coarsely punctate, the punctures nearly in mutual contact as a rule; base with marginal impressed line. Elytra a little more than three times as long as the prothorax, one-third longer than wide; discal costæ indistinct, punctate, the intercostal spaces with dense, coarse, confused punctures. Beneath less coarsely but equally densely punctate, except along the median line of the body. Propygidium without apical groove. Tibial teeth subequidistant, the upper nearly twice as far from the base as from the apical tooth. Claws cleft, the inferior portion a little shorter and stouter. Length 7.6–8.4 mm.; width 3.9–4.3 mm.

*Habitat*.—Texas. One example from Columbus (Hubbard and Schwarz) and three others without definite locality.

9. *D. puberula* Lec.

Oblong, scarcely wider posteriorly, dark brown, upper surface polished with scarcely a trace of alutaceous sculpture, sparsely hairy, the hairs erect and averaging in length one-half the width of the scutellum or slightly less. Declivity of mentum beginning at the middle of its length, the raised line rather feeble or imperfect, accompanying setæ about eight in number, anterior suture curved forward a little at middle, the basal margin of the ligula elevated and a little prominent along the arcuation. Head densely moderately strongly punctate, the front broadly feebly impressed at the middle, obscuring the clypeal suture, which is distinct laterally. Clypeal margin either truncate at middle with fairly distinct angles or broadly rotundate. Prothorax very little less than twice as wide as long, widest just before the base, not much narrowed in front, the sides broadly arcuate; disk closely not coarsely punctate, basal margin narrowly impressed, angles obtuse. Elytra three times as long and one-fifth or one-sixth wider than the prothorax; rather densely and evidently more coarsely punctate than the thorax; discal costæ feeble, the first more evident; intercostal areas confusedly punctate; sutural interval with an irregular series of finer punctures; costæ with single rows of somewhat finer punctures which are as approximate as the larger ones of the geminate striæ. Beneath rather densely punctate; propygidium without apical marginal groove. Teeth of anterior tibiæ small and obtuse or feebly developed, the posterior a little more remote, and twice as distant from the base as from the anterior tooth. Claws cleft at tip, the inferior portion stouter but scarcely shorter. Length 8–8.5 mm.; width 4.1–4.4 mm.

Very few specimens of this species have been seen, all from Texas, without indication of exact locality, and nearly all collected years ago by Belfrage. It is most closely allied to *villosa*, but is a rather larger species with wider head, clypeal margin at most truncate, never sinuate, the truncation narrower, the prothorax much less coarsely punctate and evidently more finely so than the elytra. There is also an apparently constant difference in the suture separating the ligula from the mentum, this being nearly or quite straight in *villosa* and without raised margin at middle.

10. **D. brevisetosa** Linell.

Ovate, convex, rufo-ferruginous to rufo-piceous, polished, shining, sparsely hairy, the hairs very short and much inclined. Mentum distinctly declivous anteriorly from about the apical two-fifths, arcuate ridge and setæ distinct. Head convex, moderately coarsely punctate, the punctures close on the clypeus but well separated posteriorly; clypeal suture obliterated except near the eyes, margin rounded from side to side, or with the middle subtruncate for a short distance. Prothorax a little less than twice as wide as long, widest at a point just in advance of the middle, thence just visibly convergent or subparallel to base, moderately strongly convergent in front, base angles nearly right, apical angles a little obtuse as viewed from above; disk evenly convex, punctuation somewhat variable, the punctures as a rule separated from one-half to their own diameters at the middle, slightly closer laterally. Elytra scarcely wider at base than the thorax, wider behind, barely three times as long and scarcely one-third wider than the thorax; costæ feeble, all the intercostal areas confusedly rather closely punctate, the punctures equal in size to those of the thorax; costæ with single lines of finer punctures. Body beneath rather densely punctate at sides, metasternum and abdomen nearly smooth at middle. Upper tooth of front tibia about equally distant from base and apical tooth; claws cleft at tip, the lower portion broader and nearly as long as the upper. Length 6–7.25 mm.; width 3.25–3.6 mm.

*Habitat*.—Brighton, Nueces Co., Texas (type series); Goliad, Texas, April 18th (Schwarz). Other examples in the National Museum collection are doubtless from Texas, though they carry no locality label.

The tabular characters are amply sufficient for the recognition of this very distinct species, but there may also be added as equally characteristic when compared with the other hairy

species, the widely obliterated clypeal suture and smooth median line of metathorax and abdomen. Although strongly shining the elytra show the minute alutaceous sculpture; this is not detectable on the thorax except very faintly toward the side margins.

11. **D. muricata** Schf.

Oblong, not or but slightly wider posteriorly; black, rarely brown, surface finely alutaceous, lustre dull; sparsely hairy, the hairs or setæ very short, pale, inclined and more or less recurved, not longer than one-fourth the scutellar width on the elytra, and shorter still on the prothorax. Mentum with raised line and setæ fairly distinct, labrum rather strongly arcuately emarginate. Head densely rather coarsely cribrate punctate, front and clypeus in same plane when viewed in profile, the clypeal suture rather feebly impressed but distinct; margin narrowly reflexed, arcuato-truncate at middle, rarely with short barely perceptible sinuation. Prothorax two-thirds wider than long, widest at middle, sides strongly nearly evenly arcuate, base not much wider than apex, angles as viewed from above obtuse but well defined; disk coarsely closely punctate, very densely so at sides. Elytra one-fourth longer than wide, about one-seventh wider and two and one-half times as long as the prothorax; costæ very indistinct, punctuation coarse, close, and somewhat muricate, confused in first intercostal space. Beneath still more coarsely punctate though less densely so, especially the basal parts of each segment except the last. Legs short, tarsi stouter than usual, basal joint of hind tarsus as wide as long. Upper tooth of front tibia median in position. Ungual tooth a little post-median. Length  $7\frac{1}{2}$ –9 mm; width 4.3–5 mm.

This species was taken in some numbers by Mr. Wickham at Alpine, Marfa and Big Springs, Texas, in July and August.

12. **D. hispida** n. sp.

Oblong, not or scarcely wider posteriorly, brown to piceous, surface finely alutaceous and sparsely hairy, the hairs semi-erect and not longer than one-fourth the scutellar width. Mentum declivous in front, broadly concave posteriorly, the transverse row of setæ at the anterior third. Head densely moderately coarsely punctate, clypeal suture distinct posteriorly arcuate at middle, clypeal margin rotundate, normally subtruncate at middle. Prothorax three-fourths wider than long, widest at middle, sides moderately rounded, more strongly convergent in front; angles well defined, a little obtuse; punctuation moderately coarse, the punctures separated at middle by one-half to three-fourths their own diameters, closer at sides. Elytra about two and two-thirds times as long as the prothorax and nearly two-fifths

wider; costæ faint, punctuation confused in first intercostal space, slightly so in second; each costa with a row of fine punctures. Propygidium with apical marginal groove; pygidium rugosely but not deeply or very coarsely punctate. Metasternum coarsely rather sparsely punctured, abdomen coarsely punctate at sides, the punctures at middle much finer and arranged in somewhat irregular transverse series along the middle of each segment. Front tibiæ strongly acutely tridentate, the upper tooth midway between base and apex, basal joint of hind tarsus nearly or quite twice as long as wide. Ungual tooth post-median but distinctly stouter than the apical portion of the claw. Length 7.8–9 mm.; width 4.2–4.7 mm.

New Mexico (Albuquerque and Deming); collected by Mr. Wickham. This species is easily separated from *muricata* by the tabular characters. According to Mr. Schaeffer, who has kindly compared a specimen with the type of *sparsesetosa*, it differs from the latter species in its distinct clypeal suture, hairs of upper surface longer and more numerous, discal costæ less distinct; punctuation of elytra, pygidium and abdomen sparser and less coarse and deep; apical teeth of front tibia less approximate and basal joint of hind tarsus a little longer.

### 13. *D. sparsesetosa* Schf.

"Robust, black. Head coarsely and densely punctate; genæ distinct but continuous with the sides of the clypeus; clypeal suture absent; clypeus more densely punctate than the head, apical margin feebly reflexed and scarcely emarginate, angles broadly rounded. Thorax twice as wide at base as long; apex slightly narrower than base, sides arcuate; surface very coarsely punctate, punctures well separated on the disk, dense at sides. Elytra not quite one and a half times as long as wide at base, widening towards apex; costæ distinct and with a row of smaller punctures; punctures of intervals between the geminate rows of punctures confused, coarse, but not dense, each bearing a very short pale pair, which is more apparent when the specimen is viewed laterally. Propygidium with a deep transverse well-limited and coarsely punctate impression. Abdominal spiracle rather prominent. Pygidium extremely coarsely and confluent punctate. Labrum broadly arcuate emarginate. Anterior tibiæ tridentate, the upper tooth twice as far from the second as the latter from the first. Claws cleft, the lower part broader and much shorter than the upper and truncate at apex. Metasternum and abdomen coarsely but not densely punctate, the latter still more coarsely punctate at sides. Length 9 mm."

Texas (Dietz).

"From *muricata* this species differs in being more robust, the elytra widening towards apex, much shorter and finer pale hairs and the elytra punctuation different."

The above description and remarks have been taken from Mr. Schaeffer's paper, as I have not seen the unique type, which is in the Museum of the Brooklyn Institute.

14. *D. knausii* Schf.

Elongate oblong, sides nearly parallel, ferruginous to piceous, glabrous, moderately shining. Mentum deeply parabolically excavate in front; labrum deeply divided, the lobes prominent. Head densely rather coarsely punctate, front with a rather deep triangular impression behind the clypeal suture, the latter distinct; clypeus transversely tumid posteriorly, moderately reflexed in front, margin feebly or moderately sinuate at middle. Prothorax barely two-thirds as long as wide, widest at or a little behind the middle, sides broadly arcuate, very slightly convergent posteriorly, a little more so in front, apex not much narrower than the base; disk closely punctate throughout, a little less so at middle; sides with a subtransverse impression anteriorly, the median lateral fovea usually distinct but variable. Elytra fully two and one-half times as long as, and about one-eighth wider than the prothorax; almost one-half longer than wide, not dilated posteriorly; punctures somewhat coarser than those of the prothorax and arranged in regular lines except between the suture and first geminate stria; costæ very indistinct, each with a row of very fine rather distant punctures. Body beneath rather sparsely but coarsely punctate at sides, finely and still more sparsely along the middle; second, third, and fourth ventrals with a striate tubercle on each side of the middle, these decreasing in size from the base and frequently obsolete, except the basal ones, in the female. Pygidium very coarsely rugosely punctate; propygidium with apical coarsely punctured marginal groove. Upper tooth of front tibiae midway between the base and apical tooth. Basal joint of anterior tarsus compressed, triangular and about as wide as long in the male, much less dilated in the female. Claws cleft subapically, the interior portion obviously shorter. Length 8.75–11 mm.; width 4.3–5.25 mm.

*Habitat.*—Nevada (Las Vegas—type); Utah (Horn collection); Arizona (Tucson—Leng collection; Riverside—Wickham); Hot Springs—Barber and Schwarz; Phoenix—Dr. Griffith).

The types of this remarkable species were taken not long since in southern Nevada by Mr. Tom Spalding, and sent to Mr. Knaus, to whom I am indebted for an example. The



species, however, had long been in various collections, usually under the name *mærens*. The prominent deeply divided labrum and excavated mentum at once distinguish this species from all others in our fauna, except *fissilabris*, from which the tabular characters are probably sufficient to separate it; further differences being given under *fissilabris*.

15. *D. fissilabris* n. sp.

Very similar to *knausii* in most respects, the chief differences being as follows: the labrum, though very prominent, is less so than in *knausii*; transverse clypeal ridge less pronounced, frontal impression vague or obsolete, prothorax more obviously narrowed in front, elytral punctures of third intercostal space more evidently confused in basal half, ventral segments without tubercles in either sex, but with a series of short parallel rugæ on segments 2-4 in the male; basal joint of front tarsi not broader than the second joint in the male, all the joints being merely a little stouter in this sex; ungual tooth slightly more apical in position. Length 8.3-10.5 mm.

All specimens seen are from southern Arizona. It was taken there by Morrison years ago—locality not indicated—and more recently at Tucson by Wickham and Hubbard or Schwarz, and at Florence by Biederman. A male specimen collected by Dr. Skinner in the Huachuca Mountains differs a little in having the punctures of the second intercostal space slightly confused, and in the more produced inner angles of the front tarsal joints.

16. *D. schaefferi* n. sp.

Oblong ovate, rufoferruginous. Elytra minutely, prothorax just visibly alutaceous. Mentum very broadly subconvex or nearly flat throughout, the anterior declivity scarcely detectable though defined posteriorly by the transverse row of setigerous punctures, which are at or slightly in advance of the middle. Clypeus moderately strongly reflexed, broadly feebly sinuate at middle with rounded angles; clypeus and front moderately densely punctate, the punctures becoming sparser toward the occiput; clypeal suture finely impressed, subobsolete at middle in some specimens. Prothorax slightly more than one-half wider than long, widest at about the middle, where the sides are rather narrowly or subangularly rounded; nearly straight before and behind; angles obtuse but well defined; punctuation rather fine and dense, the punctures separated by rather less than their own diameters on the average. Elytra three-tenths longer than wide, two and three-fourths times as long and nearly one-half wider than the thorax, dis-



tinctly wider posteriorly; first discal costa evident, second indistinct, each with more or less irregular or confused punctuation; all the intercostal spaces with fine confused punctuation. Pygidium moderately closely punctate; propygidial apical groove fine. Body beneath finely sparsely punctate at middle, more closely but not coarsely laterally. Upper tooth of front tibia submedian; ungual tooth subapical, feebly or scarcely obliquely truncate, its apex about four times as distant from the base as from the point of the claw (male), or distinctly obliquely truncate, its apex barely three times as far from the base as from the tip of the claw (female). Length 7.5-7.8 mm.; width 4.2-4.4 mm.

New Braunfels, Texas. Four examples submitted by Mr. Schaeffer, to whom it gives me pleasure to dedicate the species.

In the male the tarsal claws are relatively longer and more slender than in any other species known to me except *macronycha*. The eyes are also noticeably larger and the hind thighs more slender in the male. The irregularity of punctuation of the elytral costæ is a very exceptional character, and is so marked on the second costa as to greatly obscure it. This species does not look quite right in its present position, but the mentum is as completely devoid of anterior declivity and transverse ridge as in *mentalis*, and it should therefore be tabulated here.

#### 17. *D. mentalis* n. sp.

Moderately robust, very slightly wider posteriorly, head and thorax polished, elytra minutely alutaceous but shining. Mentum large, broadly convex, more or less flattened at middle, not declivous in front, transverse ridge wanting, the accompanying setæ nearly or quite absent. Terminal joint of maxillary palpi very elongate cylindrical pointed, three to four times as long as wide. Front flattened or vaguely impressed at middle behind the clypeal suture, the latter distinct; punctuation rather sparse, the punctures distant by their own diameters or more at middle, a little closer at sides; clypeus with rather strong basal transverse ridge, punctures close, margin truncate and feebly sinuate at middle, angles rounded. Prothorax very nearly twice as wide as long, widest at or slightly behind the middle; sides moderately arcuate, more convergent in front; angles obtuse, punctuation rather fine and sparse, the punctures separated at middle by two or three times their own diameters, a little closer at sides. Elytra not quite three times as long as the prothorax, and barely one-fourth longer than wide, slightly wider posteriorly; costæ sharply defined by the geminate striæ; intercostal spaces closely confusedly punctate,

the first three times as wide as the sutural interspace, the second twice as wide as the adjoining costæ; the third nearly as wide as the second; narrower intervals with a single row of finer punctures, which are quite irregularly placed on the sutural interval. Propygidium with apical groove; pygidium not very coarsely or densely punctate. Metasternum and ventral segments finely sparsely punctate at middle, more closely and coarsely at sides. Upper tooth of front tibia a little more remote from the base than from the apical tooth. Ungual tooth slightly post-median, the apex of the tooth distinctly more remote from the base than from the tip of the claw. Length 9–10 mm.; width 4.8–5.3 mm.

The greater number of specimens seen are from Texas,—St. Elmo and New Braunfels being the only specific localities given. There is a single example labeled Tennessee in my collection, and I have seen two from New Mexico—Santa Fé and Pecos—both taken by Cockerell.

The strong clypeal ridge, very slender terminal joint of maxillary palpi, absence of raised line of the mentum and almost complete absence of setæ (there are sometimes one or two) should enable the student to identify this species without difficulty, notwithstanding its close relationship to the three following.

18. **D. conformis** n. sp.

Very similar to the preceding species, the description of which applies very nearly except in the following particulars. The clypeus lacks or shows only a trace of the basal ridge; the prothorax is as a rule minutely alutaceous; terminal joint of maxillary palpi less elongate, about two and one-half times as long as wide; the mentum shows the transverse row of punctures at the anterior third, a little irregular in arrangement and not all bearing setæ; the intercostal spaces of the elytra are not so wide and are less numerously punctate, the first intercostal space scarcely more than twice as wide as the sutural interval; unguinal tooth more nearly median, the distance from its apex to the tip of the claw being very nearly as great as to the base.

In range this species is more northern and western. It is known to me from Glenwood Springs, Colorado (Fenyès), and from Prescott and Bright Angel, Arizona. Specimens in Mr. Dury's collection are labeled "Northern Arizona."

19. **D. residua** n. sp.

Ferruginous, prothorax polished. Elytra finely alutaceous but shining. Mentum without transverse raised line but with the row of

setæ, before which it is plainly declivous. Terminal joint of maxillary palpi ovate, acutely pointed, but slightly more than twice as long as wide. Front and clypeus rather densely punctate, punctures becoming well separated only at the middle of the vertex; clypeus with only faint trace of transverse ridge, the margin more broadly reflexed than in the allied species, similarly sinuate emarginate. Prothorax widest at middle, the sides strongly arcuate. Elytra more conspicuously widened posteriorly than in allies, intercostal spaces narrower than in *conformis* and much narrower than in *mentalis*; the second and third having no more than a confused single or double series of punctures. Metasternum smooth at middle; ventral segments finely sparsely punctate at middle. Upper tooth of front tibia midway between the base and apical tooth. Ungual tooth nearly as in *mentalis*. Length 8.75 mm.; width 4.6 mm.

One example (type) from Idaho in the Horn collection; a second specimen from British Columbia (Liebeck collection) is also referred here. It is piceous in color and differs a little in the elytral punctuation, and the metasternum is not smooth at middle.

From *conformis*, to which it is closely related, this species may be separated by the more broadly reflexed clypeus and differently punctate head; the terminal joint of the maxillary palpi is still shorter. The antennæ are seemingly 9-jointed, the fifth and sixth joints being completely united, the line of junction, however, being plainly evident on one side but not on the other. I doubt very much if this is anything more than accidental.

20. **D. tenebrosa** n. sp.

Rather robust, evidently wider behind, black or piceous, prothorax without or with barely detectable alutaceous sculpture, elytra distinctly alutaceous. Mentum flat posteriorly, evidently but rather feebly declivous in front, the posterior (upper) limit of the declivity marked with a row of setæ but with only a faint trace of transverse ridge. Terminal joint of maxillary palpus barely twice as long as wide. Front and clypeus moderately densely evenly punctate, the latter without basal ridge; clypeal suture distinct, nearly straight, front margin sinuate at middle. Prothorax nearly twice as wide as long, sides moderately rounded at middle, subparallel or very slightly convergent behind, more convergent in front; surface moderately closely punctate at sides, the punctures at middle a little sparser, separated by from one to two times their own diameters. Elytra three times as long and one-third wider than the prothorax; one-fifth

longer than wide; discal costæ fairly distinct, intercostal areas all with confused punctuation, the first nearly three times as wide at base as the sutural interspace. Pygidium not densely punctate; body beneath sparsely finely punctate at middle, more closely at sides. Upper tooth of front tibia midway between base and apical tooth, or very slightly nearer the base. Ungual tooth moderately large, obliquely truncate at apex, nearly twice as far from the base as from the end of the claw. Length 7.8–10 mm.; width 4.2–5.4 mm.

This is apparently a fairly common species in the northwest quarter of the United States. The following localities are represented in the material at hand: Nebraska (one example—Bowditch collection); Helena, Montana (many examples—Hubbard and Schwarz); Nevada (one example—National Museum collection); Washington (one example—Dury collection); California (three examples—Leng collection).

Of the four species with broadly convex or subconvex mentum—*mentalis*, *conformis*, *residua* and *tenebrosa*—the present one is the most robust and the only one that is always black or virtually so. *Conformis* is always brown of some shade, never truly black, and is the narrowest in form. *Mentalis* alone possesses the clypeal ridge, and is the only one in which the upper tooth of the front tibia is obviously nearer the apex than the base. The terminal joint of the maxillary palpi is most elongate in *mentalis*, in which it is more than three times as long as wide, and there is a gradual decrease through *conformis* and *residua* to rather less than twice as long as wide in *tenebrosa*.

21. **D. costulata** n. sp.

Piceous black, rarely brown or ferruginous, densely punctate, the elytra alutaceous and dull or feebly shining. Mentum broadly rather deeply concave anteriorly, the margin of the concavity arcuate posteriorly and reaching a little behind the middle, without raised line, the punctures of the arcuate series fine and indistinct, and as a rule non-setiferous. Head densely punctate, front with transverse post-clypeal convexity above which it is bi-impressed; clypeal margin sinuate at middle. Prothorax twice as wide as long, sides parallel for a short distance at base, then broadly arcuately convergent anteriorly, all the angles evidently impressed; punctuation similar to that of the head and nearly as dense, the punctures separated by less than their own diameters, except rarely. Elytra three and one-third times as long as the prothorax, slightly wider posteriorly; discal costæ unusually

distinct, the interspaces wide and closely, confusedly, more coarsely punctate than the thorax; the first intercostal area nearly or quite four times as wide as the sutural interspace. Body beneath sparsely punctate at middle, closely so laterally. Tibial teeth small and often obtuse, the upper one nearer the apical one than to the base. Ungual tooth submedian, acute, scarcely obliquely truncate, its apex about four-fifths as far from the base as from the tip of the claw. Length 12.5–13.8 mm.; width 6.6–7.2 mm.

Most of the specimens seen were taken by Barber and Schwarz at Williams, Arizona. Also taken by Dr. Skinner in the Huachuca Mountains, Arizona.

The so-called elytral costæ are, I think, rather better defined than in any other species of the genus known to me.

## 22. *D. brevicollis* Lec.

Moderately elongate, scarcely wider behind, ferruginous to dark castaneous, rarely nearly black, shining, head and prothorax polished, elytra with minute alutaceous sculpture visible only on close examination. Mentum broadly concave anteriorly, nearly as in *costulata*. Front with a median impression or two more or less confluent impressions behind an evident post-clypeal convexity; punctuation not dense, the punctures separated by their own diameters or rather more, the clypeal suture smoother; clypeus closely punctate, margin sinuate at middle with rounded angles. Prothorax twice or slightly more than twice as wide as long, sides subparallel or very slightly convergent behind in basal two-fifths, arcuately narrowed anteriorly; angles rather sharply defined, all impressed; disk rather sparsely not coarsely punctate, punctures but little closer at sides, where they are separated on an average by their own diameters. Elytra not or scarcely wider behind, fully two-fifths longer than wide and nearly or quite four times as long as the prothorax; costæ distinctly defined, intercostæ rather wide, the first about three times as wide as the sutural interval; all confusedly moderately numerous punctate, the punctures distinctly coarser than those of the prothorax; narrow intervals with single rows of rather distant fine punctures. Pygidium moderately coarsely punctate; metasternum closely punctured at sides and in front, nearly smooth at middle; ventral segments sparsely finely punctured at middle, more numerous and coarsely so laterally, especially posteriorly. Upper tooth of front tibiæ about two-thirds as far from the apex as from the base. Ungual tooth moderately large and acute, slightly post-median, its apex not distinctly obliquely truncate, the tip of the tooth a little more distant from the base than from the end of the claw. Length 12–14 mm.; width  $6\frac{3}{4}$ – $7\frac{1}{2}$  mm.

This is one of our largest species, and one of the commonest throughout its range, which includes the entire Rocky Mountain region, extending to the Pacific Coast in the north. The following localities are represented in the material seen: Vancouver; Victoria; Washington (type series); Oregon; California—no specific locality but doubtless from the northern or north-eastern part of the State; Idaho (Cœur d'Alene); Utah; Montana (Helena); Wyoming (National Park); Colorado (Cañon City, Denver, Golden, Colorado Springs, Graham's Park, Silver Plume, Leadville, Veta Pass); New Mexico (Pecos, Las Vegas Hot Springs, San Geronimo, Aztec, Beulah, Cloudcroft); Arizona (Williams, Flagstaff, Huachuca Mountains).

23. **D. semifoveata** n. sp.

Elongate, subparallel, dark brown, prothorax polished, elytra finely alutaceous, moderately shining. Mentum broadly concave in more than anterior half, without arcuate raised line or setæ. Front feebly impressed or bi-impressed at middle, post-clypeal convexity evident but not strong; clypeal suture smooth, strongly impressed; clypeal margin feebly sinuate at middle; punctuation of head moderately strong and close, the punctures separated by their own diameters or less, except at middle of vertex, denser on the clypeus. Prothorax short, twice as wide as long, sides broadly arcuate and convergent in front, slightly rounded in basal two-fifths, disk somewhat irregularly not very closely punctate; front angles evidently but not very conspicuously impressed. Elytra three and one-half times as long as the prothorax and nearly one-half longer than wide; costæ flat, distinctly limited, the wider intervals closely confusedly punctate, the first barely three times as wide as the sutural interval; punctures of sutural and costal intervals more numerous and irregular than usual, those of the lateral interspaces less evidently smaller than the strial punctures. Body beneath nearly smooth at middle, moderately punctate at sides. Upper tooth of front tibia about three-fourths as far from base as from apex; ungual tooth slightly post-median, rather broad and obliquely truncate, its tip about three-fourths as far from the end as from the base of the claw. Length 9.4–9.8 mm.; width 4.65–5 mm.

Arizona.—Huachuca Mountains, Schaeffer and Skinner.

24. **D. parvicollis** n. sp.

Less elongate than *semifoveata*, red-brown, moderately shining, the elytra minutely alutaceous. Structure of mentum nearly as in *brevicollis*. Head finely sparsely punctate, the punctures on the front separated by from one to three times their own diameters; post



clypeal convexity and frontal impressions feebly defined, clypeal suture deep; clypeus more closely punctate, margin sinuato-truncate with rounded angles—nearly as in *brevicollis*. Prothorax more than twice as wide as long, sides broadly arcuate, narrowing from the extreme base; angles well defined, the posterior ones broadly foveate or concave, front angles not impressed. Elytra as in *brevicollis*. Body beneath rather broadly subimpunctate at middle, sparsely finely punctate at sides. Legs nearly as in *brevicollis*. Length  $8\frac{1}{2}$ – $10\frac{3}{4}$  mm.; width 4.5–5.8 mm.

This species appears to be far less abundant than *brevicollis*, to which it is most closely related and which it somewhat resembles in miniature. It has been taken by Bowditch near Durango, Colorado; by Barber and Schwarz at Las Vegas Hot Springs, New Mexico, and by Snow in New Mexico, locality not stated.

The prothorax is more strongly transverse than in any other species known to me, though some specimens of *brevicollis* approach rather closely. From the latter it may at once be separated by the small size and unimpressed apical angles of the thorax. From *semifoveata*, which is of nearly the same size it differs in its somewhat more transverse thorax, which is widest at extreme base, with sharper base angles; sparser finer punctuation, and in having the basal rather than the apical thoracic angles impressed.

#### 25. *D. levicoxa* n. sp.

Moderately robust, slightly or scarcely wider behind, brown to piceous, the elytra often dark castaneous with the head and prothorax blackish; surface rather strongly shining, the elytra with barely visible alutaceous sculpture. Mentum as in *belfragei* except that the anterior declivity begins at about the anterior third; there is at the summit of the convexity a row of three or four punctures, one or two of which may bear short fine setæ, but these are most often entirely absent. Head closely rather coarsely punctate, the clypeus densely so; front narrowly nearly smooth along the clypeal suture, the latter distinctly impressed; post-clypeal convexity broad but distinct; clypeal margin either arcuate or feebly sinuate at middle. Prothorax fully twice as wide as long, sides parallel or just perceptibly convergent and sub-sinuate posteriorly in basal two-fifths, broadly rounded and convergent in front; disk rather sparsely not coarsely punctate, the punctures separated by about their own diameters at sides, sparser at middle; angles sharply defined, the hind ones nearly rectangular as



viewed from above; apical marginal impressed line evident; surface within the angles not distinctly impressed. Elytra rather more than three times as long as the prothorax, two-fifths longer than wide; discal costæ distinctly defined; intercostal spaces rather wide, confusedly punctate, the punctures coarser and closer than on the thoracic disk. Metasternum broadly nearly smooth at middle, moderately coarsely punctate at sides. Abdomen coarsely punctate at sides, sparsely more finely so at middle. Hind coxæ nearly or quite impunctate; hind thighs subimpunctate between the submarginal series of punctures. Upper tooth of front tibia midway between base and apex. Ungual tooth median in position, its apex nearly equally distant from base and tip of claw. Length 12–12.5 mm.; width 6.6–7 mm.

The type series was taken at Stockton, Utah, by Mr. Tom Spalding, and sent me by Mr. Knaus. The species has also occurred at Salt Lake, Utah; Flagstaff, Ash Fork and Tucson, Arizona (the last not quite typical); Nevada; California; New Mexico.

The impunctate hind coxæ are the most characteristic feature of this species, in which respect it is approached closely by *haydenii* alone. In the Tucson, Arizona, specimen and in one California example there are a few punctures along the hind margin of the coxa, but these specimens agree in other respects with the type.

#### 26. *D. haydenii* Lec.

Oblong oval, moderately elongate, not or scarcely wider behind, rufotestaceous, shining, the elytra and sometimes the thorax very minutely alutaceous. Mentum declivity beginning at the anterior third, its summit without acute edge or erect setæ. Clypeus truncate and feebly sinuate at middle the angles rounded, closely punctate, the suture rather strongly impressed. Front more sparsely punctate but somewhat variably so, the clypeal suture often narrowly smoother; post-clypeal convexity broad but evident. Prothorax twice as wide as long, widest at or a little behind the middle, the sides nearly straight and as a rule slightly convergent posteriorly; rather strongly convergent anteriorly; front angles acute and more prominent than usual, hind angles a little obtuse but sharply defined; anterior margin with distinct impressed line, the three lateral foveæ usually distinct but somewhat variable; punctuation rather fine and sparse, the punctures separated on the average by twice their diameters. Elytra about three and one-half times as long as the prothorax; discal costæ distinct, intercostæ wide and confusedly punctate, the first one at its widest

part nearly four times as wide as the sutural interspace. Body beneath sparsely punctate at middle; the metasternum subimpunctate; sides moderately punctate; hind coxal plates sparsely punctate; hind femora smooth at middle. Upper tooth of front tibia midway between apex and base. Ungual tooth median in position, its apex as far from the tip as from the base of the claw. Length 9-13 mm.; width 4.7-6.8 mm.

The types of this species were taken on the Yellowstone River by Dr. F. V. Hayden. It is a common species in the Rocky Mountain region, especially toward the north.

The following localities are represented in the material before me: Helena, Assiniboine and Glendive, Montana; Laramie, Wyoming; Pueblo and Greeley, Colorado; Williston, North Dakota; Kansas; Nebraska; Las Vegas and Gallinas Hot Springs, New Mexico; Arizona (one example in Bowditch collection).

*Haydenii* is very closely related to *levicoxa*, but the hind coxal plates are here always somewhat punctured, the size is smaller, the color very uniformly rufotestaceous (blackish in *levicoxa*), the front angles of the prothorax a little more prominent, and the sides of the body beneath are less coarsely punctate.

The *innoxia* of LeConte does not differ specifically.

#### 27. *D. dentella* n. sp.

Moderately robust, slightly or scarcely wider behind; black, more rarely castaneous or rufous, shining, the elytra barely visibly alutaceous. Mentum nearly as in *belfragei* except that the anterior declivity begins farther forward. Clypeus densely punctate, margin sinuato-truncate with rounded angles; front closely punctate, clypeal suture not or but very narrowly smoother; post-clypeal convexity and the posteriorly adjacent impression faint. Prothorax not quite twice as wide as long, broadly rounded anteriorly, subparallel and slightly sinuate behind the middle; hind angles nearly rectangular as viewed from above, punctures distant from one to three times their own diameters, averaging a little closer laterally. Elytra one-third longer than wide and about three times as long as the prothorax; costæ rather indistinct, the first intercostal space at middle scarcely more than twice as wide as the sutural interval, and with confused punctuation; second and third intercostal spaces narrow, the punctures often arranged in nearly regular series, but sometimes more plainly confused. Metasternum nearly smooth at middle, moderately

punctate at sides; ventral segments rather coarsely and closely punctate at sides, less coarsely and closely at middle. Upper tooth of front tibia slightly nearer the apex than the base. Hind thighs not punctured at middle; claws with short median tooth, its tip as far from the apex as from the base of the claw. Length  $11-12\frac{1}{2}$  mm.; width  $5\frac{3}{4}-6\frac{3}{4}$  mm.

This species has been taken in some numbers at Fort Grant (type) and Oracle, Arizona, by Hubbard and Schwarz; also taken by Oslar and Schaeffer, in the Huachuca Mountains. The National Museum specimens were identified as *brevidens*, and quite naturally so, as this species agrees in the unusual ungual formation and occurs in the same region. The two are plainly different, however, *brevidens* being a smaller more cylindrical species, with acutely elevated mental ridge, longer and differently shaped prothorax, much broader terminal joint of maxillary palpi, and more posterior upper tooth of front tibia. In *brevidens* the middle and anterior lateral thoracic foveæ are best defined (quite strongly in type), the posterior fovea obsolete; in *dentella* it is the anterior fovea that is absent.

#### 28. *D. insignis* Lec.

Oblong ovate, rufoferruginous, moderately shining. Mentum nearly as in *haydenii*, the declivity beginning at the anterior two-fifths. Clypeal margin truncate and very feebly sinuate at middle, angles broadly rounded. Head densely punctate with feeble but evident post-clypeal convexity, above which are faint frontal impressions. Prothorax short, obliquely narrowed in front, hind angles a little obtuse and sharply defined; punctuation coarse and close. Elytra strongly more sparsely punctate than in *haydenii*, feebly tricostate. Abdomen finely sparsely punctate at middle, closely but not very coarsely so at sides; hind coxæ punctate posteriorly and exteriorly. Upper tooth of front tibia midway between base and apex. Ungual tooth median in position, its outer edge nearly perpendicular to the claw, its apex very nearly equidistant from the base and point of the claw. Length 13 mm.

#### Salt Lake Desert.

I have seen nothing that agrees exactly with the unique type, and though closely related to two or three of the neighboring forms, I do not with the present material, feel warranted in uniting any of them with it. Its nearest allies

appear to be *dentella*, and the form *sinuata* which I have placed somewhat doubtfully as a variety of *belfragei*. The former agrees best in unguar formation, but is a somewhat smaller species with less coarsely and densely punctate thorax, and the elytral punctuation more regular. Its habitat, the mountains of southeastern Arizona, is also sufficiently distant from the Salt Lake basin to make the identity of the two forms at least questionable. *Sinuata* is nearer *insignis* in size and sculpture, but the unguar tooth is less strictly median, its outer edge more oblique basally, the thorax less transverse, and the clypeus more deeply emarginate. LeConte very properly compares *insignis* with *haydenii*, with which it is in accord in unguar dentition and in the form of the mentum; it is, however, a larger species than *haydenii*, the head and thorax much more coarsely and closely punctured, the hind angles of the latter less obtuse and more sharply outlined. The cicatrix of the terminal joint of the maxillary palpi is distinctly eroded or impressed in the type, not at all or scarcely so in *haydenii* or in the other allied forms; it is quite possible, however, that this character will not prove constant.

29. **D. belfragei** n. sp.

Moderately robust, a little wider posteriorly, black or ferruginous, moderately shining, the elytra with minute alutaceous sculpture. Mentum declivous both before and behind from about the middle, the posterior declivity feeble and broadly flat or subconvex, the anterior declivity more pronounced and broadly concave from side to side; the transverse arcuate convexity without raised line or erect setæ. Front and clypeus in same plane, post-clypeal convexity obsolete; clypeal suture sharply defined but not deep; punctuation close and moderately coarse, the punctures a little less approximate on the vertex, but distant there by less than their own diameters; clypeal margin feebly sinuate at middle with rounded angles. Prothorax three-fourths wider than long, sides broadly arcuate, subparallel toward the base, without sinuation in typical form; hind angles sharply defined, slightly obtuse when viewed from above; angles not appreciably impressed; punctures separated on the average by their own diameters or a little less, somewhat sparser at middle. Elytra a little more than one-fourth longer than wide, and slightly more than two and one-fourth times as long as the prothorax; discal costæ very distinct, intercostæ rather broad and confusedly punctate, the first three

times as wide as the sutural interval, the second about twice the width of the first costa; all the narrow intervals with a more or less regular row of very fine punctures, those of the sutural interval more numerous and confused. Body beneath sparsely punctured at middle, more closely at sides. Hind thighs rather stout, subimpunctate between the submarginal lines of punctures. Upper tooth of front tibia very nearly median in position. Ungual tooth slightly post-median, obliquely truncate, its tip three-quarters as far from the apex as from the base of the claw. Length  $9\frac{1}{2}$ – $12\frac{1}{2}$  mm.; width 5.2–6.5 mm.

With the exception of a single example from Utah in the National Museum collection, all specimens of the typical form of this species are from Texas. Of these, the greater number were collected by Belfrage. There is a series in Mr. Schaeffer's collection from Burnett Co., but none of the others has exact locality indicated. For comparison with *insignis* and *atlantis* see notes under those species.

Var. *sinuata* n. var.—This name is proposed for what seems to be a varietal form of this species, differing in its larger size ( $13\frac{1}{2}$  mm.), and in having the sides of the prothorax a little sinuate before the hind angles. It is represented by two examples in the writer's collection, taken by Prof. Cockerell at Pecos, New Mexico; and a single specimen nearly identical from Beaver Creek Mills, Utah, in Mr. Schaeffer's collection.

30. *D. atlantis* n. sp.

Moderately stout, usually but little wider behind, black or very nearly so when mature, shining, elytra minutely alutaceous, prothorax polished, without or with merest trace of alutaceous sculpture. Mentum declivous in its anterior two-fifths, margin of declivity with a series of about seven short setæ, but without raised line. Clypeus densely punctate, margin truncate and just perceptibly sinuate at middle with rounded angles; front closely punctate, broadly bi-impressed and with evident post-clypeal convexity; clypeal suture sharply impressed, nearly straight, scarcely smoother. Prothorax about three-fourths wider than long, widest at or very near the base, sides broadly arcuate, subparallel basally; punctures separated by about their own diameters at middle, closer at sides; angles not at all impressed. Elytra nearly three times as long as the prothorax; costæ distinct, scarcely or but slightly more convex; intercostal spaces confusedly punctured, the first rather less than three times the width of the sutural interval. Metasternum coarsely closely punctate laterally, very finely and sparsely so at middle. Ventral segments coarsely punctate at sides, more sparsely and finely at middle. Pygidium with a somewhat vaguely impressed longitudinal median line. Upper tooth

of front tibia a little nearer the apex than base. Hind thighs sparsely punctured at middle. Ungual tooth large, obliquely truncate, sub-apical, its tip more than twice as far from the base as from the end of the claw. Length 10-12 mm.; width 5.5-6.9 mm.

Occurs in the Atlantic Coast region from New Hampshire to Virginia. Specimens at hand bear labels as follows: New Hampshire (Hampton); Massachusetts (Dorchester, Chicopee); Rhode Island (type); New York (Staten Island, Long Island); New Jersey (Orange); Washington, D. C.; Maryland (Plummer's Island); Virginia.

This species occupies in part the same territory as does *tristis*, and the two species have been frequently mixed in collections. Of the two, *tristis* is a rather larger species, with shorter prothorax, the angles frequently slightly impressed, mentum with raised line, pygidium without impressed line, punctuation beneath less coarse, unguual tooth a trifle less apical in position. The resemblance of *atlantis* to *belfragei* is still more close, but this latter species lacks the transverse series of mental setæ, the post-clypeal convexity is obsolete, the pygidium is without impressed line and the unguual tooth is distinctly less apical.

### 31. *D. sierræ* n. sp.

Rather robust, blackish brown, shining, elytra minutely alutaceous. Mentum declivous in anterior two-fifths, margin of declivity slightly prominent and with row of erect setæ. Clypeal margin arcuato-truncate with faint median sinuation; front and clypeus densely punctate, the punctures a little less dense on the vertex; post-clypeal convexity rather strong, the broad frontal impressions well marked. Prothorax three-fourths wider than long, widest and rather strongly rounded at middle, sides thence convergent and nearly straight both before and behind, less strongly so posteriorly; punctuation coarser than usual, close at sides, the punctures at middle distant by about their own diameters; surface within the angles not at all impressed; front angles not prominent, hind angles obtuse but sharply defined. Elytra coarsely rather densely punctate, the costæ moderately well defined; intercostal punctuation confused. Pygidium coarsely closely punctate. Metasternum coarsely punctate laterally, numerous but much more finely so at middle. Upper tooth of front tibia midway between base and apex; hind thighs punctate over their entire area; unguual tooth post-median, its apex about two-thirds as far from the tip as from the base of the claw. Length 11-13½ mm.; width 6-7½ mm.



Described from two specimens in the writer's collection, the type from Placer Co., California; the second and smaller specimen from Ormsby Co., western Nevada, collected by C. F. Baker.

In general form and size *sierræ* is perhaps nearest *levicoxa*, but the punctuation is much coarser than in the last-named species, the hind coxal plates are normally punctate, the mentum is different as indicated in the table, and the ungual tooth is more apical in position.

32. **D. parallela** n. sp.

Elongate oblong, parallel, dark rufotestaceous, moderately shining, the minute alutaceous ground sculpture discernible on the thorax, and as usual better marked on the elytra. Summit of mental declivity with row of erect setæ but without distinct elevated line. Front and clypeus in same plane, the former without post-clypeal convexity or impressions; clypeal suture posteriorly arcuate at middle; margin of clypeus broadly arcuato-truncate with merest trace of sinuation at middle; punctuation of head moderately close, denser on the clypeus. Prothorax four-fifths wider than long, sides parallel in basal half with or without slight sinuation posteriorly; punctures moderately fine, separated by about twice their own diameters at middle, closer at sides; apex without marginal line; angles not impressed, the front ones scarcely prominent, the hind ones rectangular. Elytra parallel, a little less than four times as long as the thorax; discal costæ distinct, not elevated, intercostal spaces sparsely confusedly punctate, the first about three times the width of the sutural interspace. Metasternum and abdomen finely sparsely punctate at middle, closely and more coarsely at sides. Upper tooth of front tibia median in position; hind thighs punctate at middle; ungual tooth at about the apical third, large, obliquely truncate, its tip nearly twice as far from the base as from the end of the claw. Length  $11\frac{1}{2}$  mm.; width  $5\frac{1}{2}$ – $5\frac{3}{4}$  mm.

The type of this species was taken at Dripping Spring, Organ Mountains, New Mexico, April, 1898 (Cockerell). A second example from Los Pinos, Colorado (C. F. Baker), is in the National Museum collection.

This is one of the very few species in the genus in which the length exceeds twice the width.

33. **D. obscura** Lec.

Moderately robust, slightly wider behind, usually dark red brown, but varying from rufotestaceous to piceous, shining, elytra finely alutaceous, head and prothorax scarcely or barely visibly so. Men-



tum flat posteriorly, moderately declivous from about the anterior two fifths, margin of declivity raised and bearing about five erect setæ. Head rather closely not coarsely punctate, clypeus sinuate at middle with broadly rounded angles; suture posteriorly arcuate at middle, the adjacent surface of the front smoother; post-clypeal elevation and frontal impressions feeble but usually quite evident. Prothorax very nearly twice as wide as long, sides parallel or a little convergent in posterior half, more strongly convergent in front, hind angles slightly obtuse, front angles feebly prominent; punctuation moderately close, the punctures separated by about their own diameters at the middle, closer at sides; all the angles impressed. Elytra three-fourths as wide as long and slightly more than three times the length of the prothorax; discal costæ distinctly defined but scarcely at all elevated; intercostal areas with rather sparse confused punctuation, the first fully three times as wide as the sutural interval, the second about two-thirds as wide as the first. Punctuation beneath fine and sparse at middle, coarser and closer but not dense at sides. Upper tooth of front tibiæ submedian in position, perhaps a trifle nearer the apex than the base. Hind thighs very sparsely finely punctate at middle. Ungual tooth sub-apical, its tip nearly or quite twice as distant from the base as from the apex of the claw. Length 9.6–12.2 mm.

The range of this species is nearly identical with that of *brevicollis*, though extending somewhat further to the north. *Obscura* is indeed more common in the northern part of its range, while the reverse seems to be true of *brevicollis*. The type was taken in the Black Hills (Dakota) by Dr. Hammond. I have seen specimens from Colorado Springs, Empire and Georgetown, Colorado; Sheridan, Wyoming; Helena and Assiniboine, Montana; Alta, Utah; Williams, Arizona; Pullman and Spokane, Washington; Vernon, British Columbia; Oxbow, Saskatchewan; Calgary, Alberta; together with numerous specimens representing nearly all of these States, but without indication of exact locality.

In a species so widely dispersed, a considerable amount of variation is to be expected. Two forms, which I regard as races of this species, seem to me to merit distinctive names. Intermediates between these and the typical form have been seen, but unless these are at hand, the collector might easily be persuaded that he had to do with three distinct species.

Var. *promineus* n. var.—Differs from the typical form in being more elongate, with sides of prothorax less rounded and

the front angles distinctly more acutely produced. Examples of this form are known to me from Garland and Fort Collins, Colorado; southwestern Utah and New Mexico.

Var. *compacta* n. var.—More robust than typical *obscura*, color usually blackish brown, sides of thorax less arcuate as in *prominens*, but the front angles not at all prominent. The typical variety has been seen only from Utah; some examples from Wyoming, however, approach it rather more nearly than they do the true *obscura*.

#### 34. *D. tristis* Kirby.

Moderately elongate, parallel, piceous or blackish brown, elytra minutely alutaceous but shining. Mentum nearly as in *obscura*. Clypeal margin sinuato-truncate with rounded angles, clypeal suture feebly sinuous, post-clypeal convexity and frontal impressions broad and faint, punctuation moderately close, the suture usually narrowly smoother. Prothorax very slightly less than twice as wide as long, widest at base, sides broadly arcuate, often subparallel basally; front angles feebly prominent, hind angles subrectangular as viewed from above; punctuation not coarse, moderately close, a little closer laterally as usual, angles feebly impressed. Elytra almost one-half longer than wide, and rather more than three and one-half times as long as the prothorax; discal costæ distinct, very slightly convex, intercostæ confusedly punctate. Body beneath sparsely and finely punctate at middle, not very closely nor coarsely at sides. Pygidium without trace of median impressed line. Upper tooth of front tibia evidently more remote from the base than from the apex; hind thighs rather numerous and strongly punctate at middle; ungual tooth strongly post-median, broad, truncate, its tip nearly twice as far from the base as from the end of the claw. Length 12–14 mm.; width 6.3–7 mm.

*Habitat*.—Maine; New Hampshire; Massachusetts; New York; Pennsylvania (Arcola); Ontario (Port Hope); Michigan (Escanaba, Marquette); Kansas (Junction City). This last named locality is exceptional, and it is probable that the species occurs very rarely so far west. Kirby's types are said to have been collected in latitude 54°; he also reports it as occurring in Nova Scotia.

#### 35. *D. liberta* Germ.

The description of *tristis* applies so well to this well-known eastern species that it is merely necessary to allude to the few distinguishing characters. The color is uniformly black or

very nearly so in mature specimens, the upper surface, more especially of the elytra, with a more or less distinct violaceous lustre, no trace of which is ever discernible in *tristis*. The punctuation is notably coarser throughout, being especially coarser, sparser and more unevenly distributed on the thoracic disk. The prothorax is a trifle less transverse, the sides plainly convergent from the base. The impressions within the prothoracic angles are, as in *tristis*, rather feebly marked at best, but in case of doubt on this point, the size and locality label will always serve to identify these two species, *atlantis* being the only other of similar size and appearance occurring in the same region.

*Liberta* occurs from Massachusetts to Georgia, but is apparently very rarely taken to the west of the Appalachian Mountain system. The localities represented before me are: Massachusetts (Tyngsboro); New York (Peekskill); New Jersey (Anglesea, Sea Island City); Delaware; Maryland (Plummer's Island); District of Columbia; Virginia (Ft. Monroe); North Carolina (Southern Pines); Georgia (Thomasville); Kentucky. The species is said to occur in Ontario, and Prof. Wickham writes me that it is recorded from Ames on the Iowa list.

### 36. *D. subcostata* Blanch.

Moderately robust, the elytra sometimes subparallel, sometimes distinctly wider posteriorly. red brown to castaneous, shining. Mentum moderately declivous from anterior third, declivity feebly or moderately margined. Clypeal margin feebly sinuate at middle, the lateral angles broadly rounded; clypeal suture distinctly impressed and nearly straight. Front not appreciably more convex behind the clypeal suture, frontal impressions feeble or obsolete; punctuation variable, the punctures usually well separated. Prothorax less than twice as wide as long, widest at base, sides more or less conspicuously bisinuate, hind angles right or slightly acute, disk usually sparsely finely punctate, but rather variable. Elytra one-third longer than wide, discal costæ inconspicuous, not or scarcely more convex; intercostæ rather sparsely irregularly punctate, punctuation moderately coarse with a slight tendency to rugosity in some specimens, usually evident only in certain lights. Pygidium with median longitudinal impressed line. Body beneath finely sparsely punctate at middle, more closely at sides. Prosternum bicarinate at middle. Upper tooth of front tibia nearer the base than to the apex; hind thighs stout, sparsely finely punctate

at middle; unguar tooth subapical, broader than and nearly as long as the upper portion of the claw, its tip about three times as far from the base as from the apex. Length 9-11 mm.; width 5-6.2 mm.

This species occurs rather commonly in the southeastern Atlantic and Gulf region, extending west to Texas, and as far north as Pennsylvania. The material at hand is from—Pennsylvania; South Carolina; Georgia (Savannah); Florida (Lake City, Crescent City, Cedar Keys); Alabama (Mobile); Texas.

37. **D. rufa** Linell.

Smaller and a little more elongate than *subcostata*, rufotestaceous, moderately shining; prothorax discernibly, elytra more evidently, minutely alutaceous. Mentum flat posteriorly, transverse row of erect setae well marked, the accompanying ridge feeble or absent. Clypeal margin nearly squarely truncate at middle, the angles rounded. Front and clypeus in same plane, the clypeal suture evident from side to side, but more feebly impressed at middle; frontal impressions obsolete; front and clypeus rather densely subrugosely punctured. Prothorax three-fifths wider than long, widest at base, sides more or less evidently bisinuate, the basal sinuation always well marked, the apical one feebler and sometimes absent; punctuation coarser and closer than in *subcostata*, though not dense. Elytra two-fifths longer than wide, slightly wider behind, punctuation nearly as in *subcostata*. Pygidium without median impressed line. Prosternal carina single. Upper tooth of front tibia very small and nearer the base than the apex as in *subcostata*. Body beneath, hind thighs, and claws nearly as in *subcostata*. Length 8-9 mm.; width 4.3-4.8 mm.

All specimens known to me are from Florida; the types from Georgiana.

There is little doubt that *rufa* is most nearly related to *subcostata*, but specimens in which the anterior sinuation of the sides of the prothorax is wanting or ill-defined might reasonably be traced by the table to a point farther on in the genus. There is, however, no subsequent species having the posterior thoracic sinuation with subacute hind angles, combined with the absence of post-clypeal convexity and the position of the upper tooth of the front tibia.

38. **D. frontalis** Lec.

Moderately robust, slightly or scarcely wider behind, black or brownish black, polished, the alutaceous sculpture wanting or detectable with difficulty on some parts of the elytra. Mentum flat posteriorly with scattered large punctures; strongly declivous at about

the anterior fourth, the declivity not concave transversely, its summit acute and with the usual setæ. Clypeal margin broadly rotundate; post-clypeal convexity strong and abrupt, impressed at middle; head moderately densely punctate, becoming sparsely so at the middle of the vertex. Prothorax a little less than twice as wide as long, widest at about the basal two-fifths, sides moderately rounded, not appreciably sinuate before the angles; front angles not prominent, hind angles a little obtuse; disk nearly uniformly moderately closely not coarsely punctate, and with at most a very broad and feeble impression along the basal margin. Elytra barely three times as long and about one-fourth wider than the prothorax, punctuation coarse and rather dense, the three wider intervals confusedly punctured; discal costæ evident but rather inconspicuous; intrahumeral impression at base of elytra unusually strong. Body beneath coarsely densely punctate at sides, less closely and more finely so at middle. Upper tooth of front tibia feeble or obsolete, submedian in position. Ungual tooth broad, truncate, nearly as long as the outer portion of the claw. Length 8-9.2 mm.; width 4.5-4.9 mm.

*Habitat*.—Georgia (type); South Carolina; Florida (Lake City and Marion County). Not common in collections.

There is no possibility of confusing this species with any except the two following, one or both of which may indeed be only varietal forms of the present. The *punctatorugosa* of Blanchard is almost certainly one of these, but it is impossible to say which. The strong transverse medially impressed post-clypeal ridge distinguishes them at once.

39. **D. excavata** Lec.

Precisely similar to *frontalis*, except that the thoracic disk is rather broadly and deeply concave or impressed exteriorly along the basal margin, this impression causing the sides of the prothorax to become sinuate before the basal angles, when viewed from above. This character seems doubtfully sufficient for the specific separation of the two forms, and LeConte himself suggested that they might be sexes of the same species. I do not think the difference can be a sexual one, and I have not yet seen enough material to warrant the placing of the present form as a variety of the preceding.

More examples of this species have been seen than of the preceding, the following localities being represented: South Carolina; Georgia; Florida; Louisiana (Covington). It is also given in Smith's New Jersey list from Newark and Hopatcong.

40. **D. densicollis** n. sp.

The distinguishing character of this species is the very densely punctured and dull prothorax. The prothorax is impressed along the posterior margin as in *excavata*, the sides are sinuate before the hind angles and become also faintly sinuate or subsinuate anteriorly. The punctuation of the elytra is even a little denser, and the costæ less evident than in *excavata* or *frontalis*, but the difference is perhaps not greater than may occur in individuals of those species. One example in the Horn collection and two sent by Mr. Liebeck—all from South Carolina—are all that I have seen of this form, which as already indicated, may be an extreme variety of *excavata*; as yet, however, nothing at all intermediate has been seen.

41. **D. subangulata** Lec.

The unique type of this species differs from other specimens associated with it in the LeConte collection and is not exactly duplicated by any example in the very extensive material studied. While possibly it represents a distinct species, I am inclined to regard it as only an exceptional or perhaps a local variety of the common and widely dispersed species, one form of which has been lately described under the name *californica* by Mr. Schaeffer, and from which the type of *subangulata* differs as follows:

The clypeus is less advanced, making the head seem more transverse; the thorax is widest at middle, the sides more nearly equally convergent before and behind, the base in consequence not much wider than the apex, sides not at all sinuate before the angles; the post-clypeal convexity is rather feeble with only faint impressions back of it; the punctuation and claws are virtually identical with the ordinary form. Length 8.5 mm.

*Hab.*—Oregon.

Var. *californica* Schaeff. Dark brown or castaneous, more rarely rufous or nearly black, shining, the elytra minutely alutaceous. Mentum feebly concave posteriorly, declivous in front, margin of declivity acute and setiferous. Clypeal margin rather strongly reflexed, feebly emarginate at middle, the angles rounded. Head densely punctate, clypeal suture feebly impressed, smooth for a short distance near the eyes; post-clypeal convexity strong, not or but slightly impressed at



middle; frontal impressions variable, rather deep in typical form, but often shallow and feebly marked. Prothorax three-fifths (more or less) wider than long, sides strongly rounded a little behind the middle, usually slightly sinuate before the front angles, all the angles well defined, but obtuse as viewed from above; disk evenly convex, the anterior lateral fovea often well marked; punctuation rather sparse, the punctures separated by about their own diameters at sides, less close at middle. Elytra a little more than two and one-half times as long as the thorax, slightly wider behind, costæ indistinct, the punctures arranged in nearly regular lines, except in the broad subsutural interspace; second intercostal and humeral intervals with the punctures sometimes a little irregular especially toward the base. Body beneath sparsely punctate at middle, more closely at sides. Upper tooth of front tibia a little nearer the base than the apex; hind thighs sparsely punctate at middle, the punctures usually arranged in a more or less irregular line; claws with an obliquely truncate tooth beyond the middle, its apex about two-thirds as far from the tip as from the base of the claw. Length 6.4–9 mm.; width 3.3–4.6 mm.

This subspecies in one form or another occurs more or less abundantly over a wide range of territory, being found from Kansas and Texas through New Mexico and Arizona to California, and north to British Columbia and Idaho. The very large material studied bears the following labels:—Kansas; Texas; New Mexico (Albuquerque, Mesilla, Las Cruces, Deming); Arizona (San Simon, Oracle, Tucson, Ft. Grant, Globe, Florence, Gila Bend, Willcox, Winslow, Phoenix); Utah (Salt Lake, St. George); California (Salton, Death Valley, Lancaster, Redlands, Pomona, Yreka); Washington (Wenatchee); Idaho (Pocatello); British Columbia (Kamloops).

#### 42. *D. atratula* Lec.

Moderately robust, black, elytra brownish-black, lustre somewhat dull, the elytra with distinct and the thorax with visible alutaceous sculpture. Mentum declivous from anterior two-fifths, marginal ridge and setæ well developed. Clypeus less produced than in *californica*, but rather more deeply sinuate at middle, the sides broadly rounded, without sinus before the eye; head densely punctate, post-clypeal convexity well marked but without frontal excavation, there being only the vaguest sort of impressions above the convexity. Prothorax nearly as in *carbonata*, two-thirds wider than long, sides nearly straight anteriorly, rounded at posterior two-thirds, front angles slightly advanced, punctuation dense at sides, less close at middle where the punctures are separated by their own diameters or a little less. Elytra



not quite three times as long as the prothorax, and barely one-third longer than wide; costæ moderately distinct, first intercostal space wide and confusedly punctate; second with punctures in a nearly regular row in type, but somewhat confused in a second example; outer intercostal space with punctures evidently irregularly placed; narrow intervals almost devoid of the usual series of fine punctures. Upper tooth of front tibia strong, very slightly nearer the base than the apex. Ungual tooth strongly post-median, a little more apical than in *subangulata*. Length 6.9 mm.; width 3.7 mm.

This species is known to me only by the two original specimens in the LeConte collection, said to be from Frontera, New Mexico. The tabular characters are the best that can be given for its recognition. The lack of the finer punctures of the elytral intervals if constant, is most unusual.

43. **D. connata** Schaef.

Robust, ovate, black, lustre dull, prothorax minutely, elytra distinctly alutaceous. Mentum flat posteriorly, with a few coarse punctures, declivous at anterior third, margin of declivity more or less raised and with the usual setæ. Front and clypeus in same plane, very densely punctate throughout, clypeal suture more or less completely obliterated at middle; clypeal margin rounded, feebly sinuate at middle. Prothorax two-thirds wider than long, widest at middle, sides strongly rounded, base but little wider than the apex; disk evenly convex, the usual lateral impressions absent or but faintly indicated; punctuation coarse and dense, crowded at sides, the punctures a little separated at middle. Elytra two and one-third times as long as the prothorax, about one-tenth longer than wide, sides broadly arcuate, moderately divergent from the base, punctures dense in the humeral region, elsewhere less close than on the prothorax; geminate rows fairly well marked, the broader intervals confusedly punctate, the narrower intervals with single lines of punctures which are somewhat coarser and closer than usual. Body beneath closely punctate, the metasternum densely so from side to side; metasternum very short, its length between the coxæ scarcely equal to that of the second ventral segment. Upper tooth of front tibia submedian in position; hind thighs numerously coarsely punctate; unguis subapical, its tip twice as distant from the base as from the apex of the claw. Length 8.5-9.5 mm.; width 5-5.6 mm.

*Hab.*—All specimens known are from the Huachuca Mountains of southern Arizona.

The short metasternum and connate elytra indicate that the species is completely apterous. This appears to be true of no other species in our fauna except *macronycha*.

44. *D. macronycha* n. sp.

Elongate, subovate, quite convex, apparently apterous, black, moderately shining, alutaceous sculpture very fine. Mentum flat posteriorly, declivous from the anterior two-fifths, summit of declivity acutely raised, with series of seven or eight erect setæ. Clypeus unusually widely reflexed, margin rotundate, with a very feeble median sinuation; clypeal suture moderately impressed, subobsolete for a short distance at middle; front and clypeus uniformly very densely punctate, the former with a rather feeble median longitudinal impression, which is deeper anteriorly. Prothorax one-half wider than long, widest at middle, base a little wider than the apex, sides uniformly strongly arcuate, just perceptibly sinuate at the hind angles, the latter slightly obtuse but sharply defined; front angles not at all prominent; disk uniformly convex, densely punctate laterally, the punctures well separated at middle. Elytra two and one-third times as long as the prothorax, barely one-third longer than wide, subovate, convex, costæ rather indistinct, intercostal spaces confusedly punctate; interstitial punctures of narrower intervals close. Pygidium very coarsely rugose. Body beneath normally punctate; metasternum short, the length between the coxæ subequal to that of the second ventral segment. Upper tooth of front tibiæ submedian in position; hind thighs sparsely punctate at middle; claws very long and slender, the tooth small, acute, slightly post-median in position, its tip about three-fourths as distant from the apex as from the base of the claw. Length 9–10.3 mm.; width 4.5–5 mm.

*Hab.*—Moqui, New Mexico (type); Holbrook, Arizona (Wickham).

The metasternum is here not quite as short as in *connata*, but the elytra seem to be completely connate and the wings are doubtless rudimentary or wanting.

45. *D. pacta* Lec.

Moderately robust, ovate, black, shining, elytra finely alutaceous. Mentum broadly concave posteriorly, declivous from anterior two-fifths, summit of declivity elevated; clypeal margin rather strongly arcuate throughout, clypeal suture nearly straight, somewhat more impressed laterally; front without obvious post-clypeal convexity, scarcely or very feebly bi-impressed, punctuation rather dense, not more so on the clypeus. Prothorax very little less than twice as wide as long, widest at middle, sides strongly arcuate at middle, angles distinct but obtuse; disk with two deep, transversely confluent impressions on each side of the middle, these impressions variable, being nearly obsolete in some examples; an impression within the front angles; punctuation rather fine and sparse, not much closer laterally.

Elytra two and three-fourths times as long as the thorax, and about one-fifth longer than wide; elytral costæ inconspicuous, first intercostal space with confused punctures, the second and third with the row of punctures somewhat irregular. Pygidium somewhat sparsely punctured. Body beneath sparsely rather finely punctate at sides, still more sparsely at middle. Legs slender; upper tooth of front tibia sub-median; hind thighs with but few punctures at middle; unguual tooth nearly median in position, its tip nearly equally distant from base and apex of claw. Length 7.6–8.7 mm.; width 4.2–4.6 mm.

The type of this species was found near the Gila River in Arizona. The only other specimens known to me were taken by Dr. Fenyès at Palm Springs, California, on the western border of the Colorado Desert.

The thoracic impressions are deep and conspicuous in some examples, but in others, including the type, they are nearly wanting. The margins of the body are moderately fimbriate, the legs more conspicuously so than usual. The rotundate clypeus and short median unguual tooth are the two most important characters, and these when combined with the form and sculpture of the prothorax, make the species easy of identification.

46. **D. fimbriata** n. sp.

Broadly ovate, black, shining, scarcely detectably alutaceous, even on the elytra; sides of body very conspicuously fimbriate with very long hairs. Mentum declivous anteriorly, the margin of the declivity raised. Front and clypeus in same plane, clypeal suture distinct but lightly impressed; clypeal margin rotundate, faintly sinuate or sub-sinuate at middle, narrowly reflexed; head densely punctate. Prothorax not quite three-fourths wider than long, widest at middle, base a little wider than apex, sides rather strongly arcuate, all angles obtuse; disk evenly convex, densely punctate laterally, the punctures distant from one to two times their diameters at the middle. Elytra ovate, about one-seventh longer than wide and barely two and one-half times as long as the prothorax; costæ not at all evident; punctures of first broad interspace confused, elsewhere in regular rows, except just within and behind the humeri. Pygidium densely coarsely punctate. Body beneath densely very coarsely punctate at sides, more sparsely at middle. Upper tooth of front tibia submedian or slightly nearer the base than the apex; unguual tooth median in position, its apex slightly nearer the base than the tip of the claw. Length 8–10 mm.; width 4.5–5.6 mm.

Described from three examples taken by the writer at Palm Springs, California, in April.

47. **D. brevidens** Lec.

Oblong, moderately elongate, strongly convex, black or brown, shining, surface polished with only faint trace of alutaceous sculpture. Mentum declivous in front, summit of declivity elevated and setaceous. Clypeal margin slightly sinuate at middle, rounded at sides; clypeal suture finely impressed, a little more deeply so at sides and smoother. Head densely punctate, front nearly evenly broadly convex. Prothorax one-half wider than long, widest at middle, sides subangulate, nearly straight and feebly convergent posteriorly, more strongly convergent and straight in front, angles well defined but obtuse. Punctuation rather sparse, not coarse, the punctures separated by about their own diameters at sides, and by from one to two times their own diameters at middle; middle and anterior lateral foveæ distinct, the latter somewhat more distinct from the side margin than the former and close to the front margin. Elytra two and one-half times as long as the prothorax, and one-third longer than wide, costæ feebly indicated, punctures in regular rows except in the broad subsutural interspace. Punctuation beneath moderate, sparse at middle, closer at sides. Upper tooth of front tibiæ a little nearer the base than the apex; hind thighs very finely sparsely punctate at middle; ungual tooth median, its tip a trifle more remote from the apex than from the base of the claw. Length 9.6–10.5 mm.; width 4.8–5.3 mm.

The sexes in this species are very easily distinguished, the male having the terminal joint of the maxillary palpi broadly ovate pointed, much less than twice as long as wide, the front and middle femora and tibiæ quite densely hairy on the inner side, and the abdomen flattened at middle, with more numerous short erect hairs, especially on the second and third segments. In the female the terminal joint of the maxillary palpi is more elongate oval, nearly or quite twice as long as wide, the legs are normally hairy, and the abdomen convex.

The type was described from the valley of the Gila. It has been taken at Tucson, Arizona, by Hubbard and Schwarz and Wickham, and at Phoenix by the late Dr. Griffith.

48. **D. fossipalpa** n. sp.

Oblong, moderately stout, scarcely wider posteriorly, brown or nearly black, shining, elytra minutely alutaceous. Mentum transversely broadly concave behind, declivous from the anterior third, hind margin of declivity moderately prominent. Clypeal margin rounded, with a rather broad and shallow median sinuation; clypeal suture distinctly impressed, biarcuate or posteriorly sinuate at middle;

head rather densely punctate, without evident post-clypeal convexity or frontal impressions. Prothorax one-half wider than long, sides strongly rounded at middle, distinctly sinuate before and behind; front angles as viewed from above obtuse but well defined, not at all produced; hind angles nearly right; all the lateral foveæ evident, punctuation fine and rather sparse, the punctures distant by about their own diameters laterally, finer and separated by from two to three times their own diameters at middle. Elytra two and one-half times as long as the prothorax, widest at middle, sides very broadly arcuate; costæ not defined; punctures moderately coarse and confused in the subsutural interspace, and somewhat irregular in the humeral interspace, otherwise arranged in regular series. Propygidial marginal groove feeble. Punctuation beneath very sparse and fine at middle, closer but neither coarse nor dense laterally. Teeth of anterior tibiæ obtuse, the upper one median in position or possibly very slightly nearer the base than the apex. Ungual tooth median in position, very nearly as in *brevidens*. Length 11.2–12.5 mm.; width 5.6–6.2 mm.

Phoenix, Arizona. Two examples sent by Mr. Liebéck. This species is closely related to *brevidens*, though more similar in appearance to the following species (*illustris*). It agrees with *brevidens* in unguel formation and in the elytral punctuation, but in the latter species the sides of the thorax are not perceptibly sinuate either in front or behind. The head in *brevidens* is but slightly more than half as wide as the thorax, and the impression of the terminal joint of the maxillary palpus is of normal size and does not extend beyond the middle. In *fossipalpa* the head is about three-fifths as wide as the thorax and the impression of the terminal palpal joint is deeply eroded and extends almost from base to apex. The present species is very similar in size and form to *illustris*, and it is not impossible that it may be the female of that species, which is known only by the male. The difference in elytral punctuation and position of unguel tooth are, however, not known to be sexual elsewhere, and it would be unwarranted to assume such relation without absolute proof.

49. **D. *illustris*** n. sp.

Oblong, moderately robust, not wider behind, dark brown, moderately shining, elytra minutely alutaceous. Mentum flat posteriorly, declivous from anterior third, declivity strongly margined. Clypeal margin rather feebly sinuate at middle, rounded at sides, clypeal suture distinct from side to side, finely impressed; front without post-

clypeal convexity but with two distant moderately distinct impressions; punctuation dense except at middle of occiput. Prothorax fully one-half wider than long, strongly rounded at middle, oblique and feebly sinuate both anteriorly and posteriorly; hind angles sharply defined, a little obtuse, front angles obtuse; punctuation moderate, punctures separated by about their own diameters at sides, less close at middle; all the lateral foveæ evident though less marked than in *fossipalpa*. Elytra two and three-fourths as long as the prothorax, not wider behind, costæ distinct, all the intercostal spaces with confused punctures. Ungual tooth obviously post-median in position, the tip of the tooth barely two-thirds as far from the apex as from the base of the claw. Length 12 mm.; width 6.2 mm.

Described from a single example taken by Prof. Snow in southeastern Arizona (Baboquivaria Mountains). The unique type is a male, having the abdomen flattened and densely finely punctate and hairy at middle, the front and hind legs—especially the femora and tibiæ—densely hairy within. The impression of the last joint of the maxillary palpus is large and deep, extending two-thirds the length of the joint. As indicated under *fossipalpa*, this species resembles that very closely, but differs in its less sinuate sides of the prothorax, in having all the intercostal intervals confusedly punctate, and in the more posterior position of the unguual tooth. The male sexual characters are unusually pronounced in *illustris*, and may prove to be quite different in *fossipalpa*.

#### 50. *D. beyeri* Schæf.

Form oblong, parallel; reddish brown, only moderately shining; elytra finely, prothorax just visibly alutaceous. Mentum declivous from about the anterior third, margin of declivity rather feebly raised. Head scarcely more than half as wide as the prothorax, clypeus broadly reflexed, sinuate at middle, angles broadly rounded, sides sinuate; clypeal suture distinct; front evenly subconvex, without impressions; punctuation moderately dense, narrowly smoother along the suture. Prothorax fully one-half wider than long, sides moderately strongly rounded at middle, oblique and nearly straight before and behind, more strongly convergent in front; front angles obtuse, hind angles sharply defined, a little obtuse; disk rather strongly convex, punctures separated by about their own diameters laterally, a little sparser toward the middle. Elytra parallel, twice as long as and very little wider than the prothorax; discal costæ evident, punctuation confused in all the intercostal spaces, but often only slightly



so, or only toward the base in the outer ones. Metasternum moderately punctured at sides, sparsely at middle; abdomen sparsely punctate even at sides. Upper tooth of front tibia nearer the base than apex; ungual tooth post-median, its tip about two-thirds as far from the point as from the base of the claw. Length 9–10 mm.; width 4.6–5 mm.

Brownsville, Texas. Taken in some numbers by Messrs. Schaeffer and Beyer.

The cylindrical form, broad thorax and relatively narrow head, with widely reflexed clypeus, give this species a quite distinctive facies. The impression or cicatrix of the terminal joint of the maxillary palpus is small and not at all eroded.

51. *D. sulcatula* n. sp.

Rather robust, oblong-ovate, moderately shining, elytra finely alutaceous, prothorax barely visibly so. Mentum flat posteriorly, declivity beginning at the anterior two-fifths, strongly margined. Clypeus sinuato-rotundate, strongly widely reflexed; clypeal suture fine, widely obliterated at middle; front evenly subconvex, punctuation close but not dense. Prothorax slightly more than three-fifths wider than long, widest at middle, sides strongly convergent and nearly straight anteriorly, a little convergent and very broadly arcuate behind, all angles obtuse but well defined; punctures fine, separated by from one to two times their own diameters, a little sparser at the middle of the disk as usual. Elytra not quite two and three-fourths times as long as the prothorax, two-sevenths longer than wide; costæ moderately distinct, first intercostal space rather sparsely confusedly punctate; second variable, punctuation either quite irregular or only slightly so; humeral interval with confused punctuation. Pygidium sparsely punctate and with a shallow median longitudinal sulcus. Beneath finely punctate, very sparsely so at middle, not very closely at sides. Upper tooth of front tibia submedian, perhaps a trifle nearer the base than the apex; ungual tooth obviously post-median, its tip about three-fourths as distant from the point as from the base of the claw. Length 8.9–10.5 mm.; width 4.9–5.8 mm.

*Hab.*—Texas; El Paso, Texas; Mesilla, New Mexico; Arizona (Liebeck coll.). Nearly all specimens are from the vicinity of El Paso, Texas, where the species appears to be not uncommon.

The impressed line of the pygidium, though seemingly a trivial character, appears to be very constant and is, with the broadly reflexed clypeus, sufficient for the recognition of the species.



52. *D. mœrens* Lec.

Oblong, very little wider behind, dark brown or blackish, elytra finely, prothorax more minutely alutaceous, lustre rather dull. Mentum declivous from the anterior third or two-fifths, declivity margined, labrum more deeply emarginate than usual. Front and clypeus nearly flat and in the same plane, the latter very narrowly reflexed, the margin feebly sinuate at middle, sides rounded; punctuation of head very dense, clypeal suture obsolete at middle. Prothorax nearly three-fourths wider than long, widest near the middle, sides slightly convergent posteriorly, more strongly so in front; punctuation rather fine, dense along the anterior margin, sparser along the middle, where the punctures are separated by from one to two times their own diameters, a little closer laterally. Elytra two and one-half times as long as the prothorax, very slightly wider behind, costæ distinct; first intercostal space with confused punctuation, second and third variable but usually with the punctuation irregular, at least basally. Pygidium very coarsely rugosely punctate. Metasternum strongly moderately closely punctate at sides, sparsely and finely at middle; abdomen more coarsely so laterally, nearly smooth at middle. Upper tooth of front tibia just perceptibly nearer the apex than the base. Ungual tooth post-median, its tip two-thirds as far from the apex as from the base of the claw. Length 9.5-11 mm.; width 5-5.7 mm.

The following localities are represented: Tucson, Florence and Phoenix, Arizona; St. George, Utah; Los Angeles County and Palm Springs, California.

The type was described from Vallecitas, in the southeastern desert region of California.

The labrum is more deeply emarginate than in any other of the non-hairy species except *peninsularis*, *knausii* and *fissilabris*, but is distinctly less deeply impressed than in the two last named species.

53. *D. punctipennis* Lec.

Oblong oval, scarcely wider posteriorly, black or brown, moderately shining, upper surface coarsely densely punctate throughout, elytra finely alutaceous. Mentum declivous from about the anterior third, declivity margined. Clypeal margin sinuato-rotundate; clypeal suture fine, distinct, head densely punctate, front with a vague median impression. Prothorax three-fifths wider than long, sides broadly arcuate, subparallel in basal half, punctuation coarse and dense. Elytra a little less than two and two-thirds times as long as the prothorax; punctuation coarse and close, irregular on all the intercostal spaces, but less markedly so in the outer two; costæ evident. Body beneath

coarsely punctate throughout, more closely at sides. Upper tooth of front tibiæ obviously nearer the base than the apex; unguar tooth strongly post-median, its tip about twice as distant from the base as from the apex of the claw. Length 10-11 mm.; width 5.3-5.8 mm.

The two type specimens are from Texas, collected by Haldeman. A single specimen, also from Texas, is in the National Museum collection.

The most conspicuous feature of this species is the unusually coarse and dense punctuation of the entire upper surface. The metasternum is also more coarsely punctate at middle than in any of the allied forms. The unguar tooth is so strongly post-median that the species might with about equal propriety be included under the subsequent caption, "Unguar tooth apical or subapical, etc." in which case the coarse and dense sculpture would still separate it from any species there given.

#### 54. *D. corvina* Lec.

Robust, rather strongly convex, oblong oval, not wider behind, black, shining, elytra minutely alutaceous, prothorax scarcely visibly so; surface throughout minutely punctulate in addition to the usual punctuation. Mentum with acutely margined declivity in front. Clypeus broadly rotundate, sometimes with slight trace of median sinuation; clypeal suture moderately impressed; front nearly evenly subconvex, punctuation of head moderately coarse, dense. Prothorax three-fifths wider than long, widest at middle, sides broadly evenly arcuate, base a little wider than the apex; punctuation coarse, dense at sides, the punctures well separated at middle; a somewhat vague median impressed line; the angles obtuse. Elytra not very much wider than the prothorax and a little less than two and one-half times as long, nearly one-fourth longer than wide; costæ indistinct, recognizable only by the rows of fine interstitial punctures; punctuation coarse, disposed in regular rows except in the broad subsutural interspace. Pygidium very coarsely subrugosely punctate. Punctuation below about as usual. Legs stout, upper tooth of front tibiæ submedian, or perhaps a trifle nearer the base than the apex. Unguar tooth post-median, obliquely truncate, its tip two-thirds as distant from the apex as from the base of the claw. Length 12-13 mm.; width 6.5-7.2 mm.

All specimens seen are from the vicinity of Yuma, Arizona.

The large size, convex parallel form, shining black color, the regular arrangement of elytral punctures exterior to the subsutural interspace, and the median impressed pronotal

line readily distinguish this fine species, which is at present rare in collections. The prominence of the posterior spiracles and the length of the terminal spinules of the hind tibiæ, mentioned by LeConte, are not characters of importance.

55. **D. carbonata** Lec.

Ovate, black or brownish black, lustre usually dull, sometimes moderately shining, elytra distinctly, prothorax minutely alutaceous. Mental declivity distinctly margined. Clypeal margin rounded, feebly or just perceptibly sinuate at middle; clypeal suture nearly straight, distinctly impressed; front moderately convex without impressions, punctuation close. Prothorax three-fourths wider than long, widest at or slightly behind the middle, sides strongly arcuate, angles obtuse; punctuation fine, rather sparse at middle, where the punctures are separated by about twice their own diameters, at sides by their own diameters or less. Elytra two and three-fourths to three times as long as the prothorax, a little wider behind, costæ distinct, first intercostal space with confused punctuation; second and third variable, the punctuation sometimes irregular throughout, at others only so toward the base. Body beneath moderately punctate at sides, the ventral segments nearly smooth at middle. Upper tooth of front tibia a little nearer the base than the apex; unguis tooth strongly post-median, large, obliquely truncate, its tip about two-thirds as far from the tip as from the base of the claw. Length 6-7.5 mm.; width 3.5-3.9 mm.

This species occurs from western Nebraska to Arizona, and is rather common in Colorado and New Mexico; the specific localities represented in the material studied being Ft. Robinson, Nebraska; Colorado Springs, Colorado; Luna, Albuquerque, Colora'o and Mesilla Park, New Mexico; Hot Springs, Arizona.

56. **D. rufiola** n. sp.

Closely related to *carbonata*, with which it agrees so nearly in form, size and sculpture that only the distinguishing characters need be mentioned.

The color is pale rufous; the mental ridge feebler; the prothorax smaller, rather less than one-third as long as the elytra; the punctuation beneath, especially of the ventral segments, still sparser and finer; the unguis tooth less stout and more apical, the tip of the tooth fully twice as far from the base as from the apex of the claw.

The type is one of a series taken by Mr. Knaus at Deming, New Mexico, where it has also been taken by Hubbard and Schwarz; it also occurs at Alamogordo, New Mexico (Horn coll.), at Glenwood Springs, Colorado (Fenyès coll.), and at Ft. Grant, Arizona (National Mus. coll.). A series collected by Prof. Snow in the Baboquivaria Mountains, southeastern Arizona, and by Wickham at Nogales, Arizona, differs in being brown in color and in having the thorax relatively a trifle longer; this is a variation in the direction of *carbonata*, but the claws are as in typical *rufiola*, of which it seems only a variety.

57. **D. acerba** n. sp.

Rather stout, suboval, rufous to blackish brown, strongly shining, alutaceous sculpture barely detectable. Mental ridge moderate. Clypeal margin rounded, with very slight median sinuation or truncation; clypeal suture moderately distinct; punctuation of head moderately close but not crowded. Prothorax three-fifths wider than long, widest at middle, sides moderately arcuate, angles obtuse, front margin obviously bisinuate, punctuation coarser than in *carbonata*, the punctures distant from a little less to a little more than their own diameters. Elytra one-half wider than the prothorax, and about two and two-thirds times as long; sides nearly parallel; punctuation coarse and dense, the costæ evident, all the intercostal spaces confusedly punctate, the two outer ones much more broadly so than in *carbonata*. Punctuation beneath moderately close laterally, quite coarse toward the abdominal apex. Upper tooth of front tibiæ a little post-median in position. Ungual tooth strongly post-median, obliquely truncate, the apex about twice as far from the base as from the point of the claw. Length 6.5–7.5 mm.; width 3.7–4.2 mm.

Described from a small series in the Horn and National Museum collections. All specimens are labeled either "Texas" or "S. W. Texas."

This species is remarkable for the very coarse and close punctuation of the elytra, they being quite as coarsely punctate relatively as in *punctipennis*, which species, however, is much larger and with more densely punctate thorax, the latter also less strongly rounded at middle, and wider relative to the elytral width. This latter distinction also holds in comparison with all other related species.

58. *D. ingenua* n. sp.

Oblong, subovate, rufo-ferruginous, moderately shining, elytra finely alutaceous. Mentum feebly declivous from anterior third or fourth, margin of declivity slightly or scarcely elevated. Clypeal margin sinuato-truncate at middle, with rounded angles; front and clypeus in nearly same plane, the suture distinctly impressed; clypeus closely but not densely punctate, front less closely, the punctures everywhere well separated. Prothorax strongly transverse, about four-fifths wider than long, widest at or very slightly behind the middle, sides moderately arcuate, strongly convergent in front, moderately so behind, angles all obtuse, the anterior ones less so and a little prominent; punctuation rather fine, moderately close laterally, sparser toward the middle. Elytra more than three times as long as the prothorax, a little wider posteriorly, costæ evident, first intercostal interval with the usual confused punctuation, second and third variable, but usually with the irregularity fairly well marked. Body beneath finely sparsely punctate medially, more closely at sides. Upper tooth of front tibia distinctly ante-median in position; ungual tooth subapical, the tip fully twice as distant from the base as from the apex of the claw. Length 7-9 mm.; width 3.9-5 mm.

*Hab.*—Arizona.

The type is from the Huachuca Mountains, where the species has been taken by Oslar, Schaeffer and Skinner. other specimens are from Ft. Grant (Hubbard and Schwarz), and Prescott (Blanchard coll.).

59. *D. planidens* n. sp.

Oblong-ovate, black, elytra finely but distinctly alutaceous and somewhat dull. Mental declivity long, beginning near the middle, margin elevated and setiferous. Clypeal margin sinuato-truncate at middle with broadly rounded angles; head very densely punctate, clypeal suture subobsolete at middle, no post-clypeal ridge, the front broadly evenly subconvex. Prothorax three-fifths wider than long, widest slightly behind the middle, sides moderately arcuate, very feebly sinuate anteriorly, angles well defined, a little obtuse; punctures separated by rather more than their own diameters at sides. Elytra slightly more than two and one-half times as long as the thorax, very little wider than the thorax at base, gradually wider behind; costal intervals evident but nearly flat; first intercostal space with punctures broadly confused, narrowly so on the others. Punctuation beneath coarser than above, close at sides, sparser and finer toward the middle. Upper tooth of front tibia just visibly nearer the apex than the base. Ungual tooth subapical; outer claw of middle tarsus broadly laminiform basally, the tooth projecting acutely from its anterior edge. Length 6.8 mm.; width 3.6 mm.

Described from a single example from Jerome, Arizona, submitted by Dr. Fenyès.

The modification of the outer claw of the middle tarsus is unique in the genus; it is possibly a sexual character.

60. *D. ambigua* n. sp.

Oblong ovate, brown or piceous, moderately shining, the elytra distinctly minutely alutaceous, prothorax barely visibly so. Mental declivity beginning about at the anterior two-fifths, hind margin of declivity prominent. Clypeus rather broadly reflexed, arcuately emarginate at middle, the angles rather abruptly rounded in the male, more broadly so in the female. Head densely punctate, clypeal suture distinctly impressed, front broadly feebly evenly convex. Prothorax one-half wider than long, widest at about the basal two-fifths, or more rarely at about the middle; sides arcuate posteriorly, convergent and nearly straight in front, angles all sharply defined though obtuse; punctuation moderate. Elytra two and one-half times as long as the prothorax, usually evidently wider behind; costæ distinct, first intercostal space rather coarsely closely confusedly punctate, second and third irregularly punctate, but less broadly so than the first. Body beneath closely rather coarsely punctate laterally, more sparsely and finely so medially. Pygidium coarsely densely punctate. Upper tooth of front tibiæ submedian. Tarsi moderately densely hairy beneath in the male, less evidently so in the female. Ungual tooth subapical, broad and obliquely truncate in the female, less broad and more obtusely rounded at tip in the male, its apex more than twice as distant from the base as from the apex of the claw. Length 8-8.6 mm.; width 4.3-4.6 mm.

Rincon Mountains, southern Arizona; ten examples collected by Mr. Beyer.

The terminal joint of the maxillary palpi is ovate pointed, the cicatrix rather large and deeply impressed, not differing materially in the sexes. A single example from Arizona in the Horn collection which I refer here, has the palpal cicatrix smaller and less deeply impressed, and the clypeal margin somewhat less broadly reflexed. The form of the clypeus is so variable that with certain specimens in hand—more especially males—the species might naturally be referred to the group with angulate clypeus, where the hairy tarsi would associate it with *tarsalis*, from which, however, it is readily separated by the sexually unmodified terminal joint of the maxillary palpi and by the greater sexual difference in the hairy vestiture of the tarsi.



61. **D. cephalotes** n. sp.

Oblong-ovate, dark brown, with faint æneous reflections in certain lights, polished, alutaceous sculpture scarcely detectable at any point. Mentum quite strongly obliquely declivous anteriorly from about the middle, and somewhat oblique posteriorly, margin of declivity obtuse not raised. Clypeal margin sinuato-truncate at middle, the angles rounded; clypeus with rather strong transverse tumidity, behind which the suture is deeply impressed; front rather deeply triangularly impressed at middle; punctuation of head moderately coarse, close, but not crowded on the clypeus, the punctures on the front separated on the average by about their own diameters. Prothorax three-fifths wider than long, sides parallel in basal half, moderately rounded at middle, and convergent anteriorly, angles well defined, the posterior ones only a little obtuse; punctuation not close, the punctures distant from one to two times their own diameters. Elytra three times as long as the prothorax, slightly widened posteriorly, costæ evident, all the intercostal intervals with confused punctuation, the outer ones narrower as usual; other intervals with the fine serial punctures closely placed and forming single regular rows. Metasternum closely punctate at sides, abdomen closely quite coarsely punctate; not very much more finely or sparsely so at middle than at sides. Upper tooth of front tibia distinctly nearer the apex than to the base; ungual tooth broad, truncate, much curved, its tip about two-thirds as far from the apex as from the base of the claw. Length 7.6 mm.; width 4.25 mm.

*Hab.*—Southern Illinois; a single example in the Bowditch collection.

The tumid clypeus and strong triangular frontal impression will, if constant, easily identify this species; the faint æneous lustre is also a very exceptional character. The mentum is abnormal for this part of the genus and suggests the form prevailing in *levicoxa* et seq.

62. **D. marginicollis** n. sp.

Oblong, slightly or scarcely widened behind, black or dark brown, moderately shining, the elytra plainly, the prothorax visibly alutaceous. Mental declivity narrow, beginning at the anterior fourth, finely margined behind. Clypeus rather broadly sinuato-truncate, the angles rounded, rather densely punctate, suture well defined; front broadly subconvex, not very closely punctate. Prothorax nearly three-fourths wider than long, sides subparallel in basal half, broadly arcuately convergent in front, hind angles subrectangular, front angles obtuse not prominent, an apical submarginal impressed line, the sides slightly impressed along the margin posteriorly; punctuation fine, the punctures separated by from one to two times their own diameters.



Elytra three times as long as the prothorax, costæ distinct, slightly prominent, all the intercostal spaces broadly confusedly punctate, the second not much narrower than the subsutural one. Body beneath densely but not very coarsely punctate at sides, more sparsely and finely at middle. Upper tooth of front tibia very slightly ante-median; ungual tooth broad, obliquely truncate subapical, its tip fully twice as distant from the base as from the tip of the claw. Length 7.2–9 mm.; width 4–4.6 mm.

*Hab.*—Huachuca Mountains (type), Ft. Grant, Prescott and Williams, Arizona; Water Cañon, New Mexico (Snow).

63. **D. pubipes** Schaeff.

Oblong-ovate, black, strongly shining, elytra imperfectly scarcely visibly alutaceous. Mental declivity steep, beginning at about anterior third, strongly margined behind. Clypeus broadly subtruncate at middle, the truncation broadly feebly emarginate, the angles rather narrowly rounded; front sparsely and finely punctate, smoother along the suture, clypeus more densely punctate, the former slightly impressed or concave at middle just behind the clypeal suture, which is finely impressed laterally, obsolete at middle. Prothorax one-half to three-fifths wider than long, sides nearly straight or feebly arcuate and parallel in basal half, moderately convergent in front, all the angles a little obtuse, the hind ones slightly rounded, surface finely not very closely punctate, scutellum distinctly smaller than usual, the adjacent surface of both prothorax and elytra impressed. Elytra one-third longer than wide, two and one-half times as long as the prothorax, evidently wider behind, costæ moderately distinct, all the intercostæ rather wide and rather densely moderately coarsely punctate. Propygidium with sharply impressed apical groove; pygidium sparsely punctate. Body beneath densely rather coarsely punctate at sides, more sparsely and finely at middle. Upper tooth of front tibia strongly ante-median. Tarsi densely pubescent beneath in the male, less densely so in the female; ungual tooth subapical, broad, truncate at apex, its tip nearly twice as far from the base as from the point of the claw. Length 8.5–9 mm.; width 4.6–5 mm.

Brownsville, Texas. Collected by Schaeffer, Beyer and Wickham.

One of the most distinct species of our fauna, easily recognized by the very small scutellum, the circumscutellar impression and pubescent tarsi. In this, as well as in other species described by him, Mr. Schaeffer has considerably overestimated the width of the prothorax in terms of its length, as well as the length of the elytra in terms of its width.

64. **D. trementina** n. sp.

Oblong, subparallel, dark brown, only moderately shining, both thorax and elytra with fine alutaceous sculpture. Mental declivity beginning near the middle, strongly margined. Clypeal margin rather feebly sinuate at middle, arcuate at sides; head densely punctate, front nearly flat at middle. Prothorax not quite three-fourths wider than long, sides broadly arcuate, subparallel posteriorly; punctuation fine, sparse at middle, rather close laterally. Elytra barely one-fifth wider than the prothorax and about two and two-fifths times as long, punctuation forming nearly regular rows except in the sutural interspace, a slight irregularity toward the base in the second and third intercostal intervals. Body beneath sparsely punctate, more closely at sides of metasternum and both coarsely and closely at sides of fifth ventral. Upper tooth of front tibia submedian; middle tarsus subequal in length to the tibia, hind tarsus shorter than the tibia. Ungual tooth broad, obliquely truncate, its tip nearly twice as distant from the base as from the point of the claw. Length 9.5 mm.; width 5.1 mm.

The type is from La Trementina, New Mexico (Cockerell); a second example is from Tucson, Ariz. (Nat. Mus. collection).

65. **D. punctulata** Horn.

Robust, black, moderately shining; upper surface minutely alutaceous and with a system of very fine punctures occupying the intervals between the usual punctures. Mental declivity narrow, steep, strongly margined. Clypeal margin sinuate at middle, angles broadly rounded; clypeal suture distinctly impressed, broadly posteriorly arcuate at middle; head densely punctate; front nearly flat. Prothorax three-fifths wider than long, fully as wide at base as at middle, sides subparallel in basal half, moderately rounded at middle, convergent and nearly straight anteriorly; front angles obtuse, hind angles nearly rectangular; punctuation rather fine, the punctures separated by about their own diameters at sides; and by from one to three times their diameters at middle. Elytra a little wider posteriorly, not quite two and three-fourths times as long as, and three-tenths wider than the prothorax; costæ distinct, all the intercostal intervals wide and confusedly punctate. Body beneath densely but not coarsely punctate at sides, sparsely at middle. Upper tooth of front tibiæ submedian; hind thighs impunctate at middle. Ungual tooth subapical, obliquely truncate, its tip about three times as far from the base as from the point of the claw. Length 13.5–15 mm.; width 7.5–8.3 mm.

Lower California, San Jose del Cabo (Fuchs); Santa Rosa, San Felipe, El Taste (Beyer).

The very fine punctuation of the upper surface which

prompted the name given by Dr. Horn is by no means peculiar to this species, though it seems to be better developed here than elsewhere. As a rule, when present, these finer punctures are much more evident on the prothorax than on the elytra, but in the present species are equally so in both.

66. **D. peninsularis** n. sp.


Oblong oval, rather robust, dark brown, prothorax blackish, lustre somewhat dull, upper surface finely alutaceous. Mental declivity short, distinctly margined and quite evidently concave from side to side. Labrum deeply emarginate; clypeal margin distinctly sinuate at middle, the sides rounded; clypeal suture distinctly impressed, broadly arcuate at middle, front bi-impressed in a line between the upper portions of the eyes; head throughout densely punctate. Prothorax barely three-fifths wider than long, widest at the basal angles, sides deeply sinuate and slightly convergent or subparallel to about the anterior third, thence rounded to apex; front angles obtuse, hind angles right or even slightly acute; punctuation moderately coarse and rather dense, the punctures separated as a rule, by less than their own diameters, but as usual are a little sparser along the median line. Elytra one-fifth longer than wide, two-fifths wider and two and two-thirds times as long as the prothorax, slightly widened behind, coarsely quite densely punctate, the costæ well marked, the intercostæ all wide and confusedly punctured. Body beneath punctate as usual. Upper tooth of front tibia submedian; hind thighs punctate at middle; ungual tooth subapical, its tip about twice as distant from the base as from the apex of the claw. Length 12 mm.; width  $6\frac{1}{2}$  mm.

Santa Rosa, and San Felipe, Lower California (Beyer).

This species is evidently rather nearly allied to *mærens*. The form of the labrum is the same in both, but the prothorax in the present species is of somewhat different shape and much more densely punctate, and the ungual tooth is more apical.

67. **D. anxius** Lec.

Oblong-oval, brown or piceous, coarsely densely punctate and minutely alutaceous, only moderately shining. Mental declivity beginning at about the anterior third, distinctly margined behind. Clypeus broadly arcuate, sinuate at middle. Front and clypeus very densely punctate, the former broadly feebly bi-impressed, clypeal suture finely impressed, nearly straight. Prothorax about three-fifths wider than long, sides broadly arcuate, subparallel posteriorly, hind angles slightly obtuse, surface very densely subrugosely punctate, a shallow impressed nearly entire median line. Elytra about two and two-thirds times as

 Remarks to follow description of **D. anxius** (No. 67).

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*Hab.*—Arizona and Utah; the types from the Gila Valley.

The sexual difference in the anterior claws is unique and afforded a basis for the erection of the genus *Orsonyx* by Le Conte, who either did not have or did not examine the female. Very few species in our fauna have the prothorax so densely punctate as *anxius*, and this together with the still rarer impressed median line of the pronotum will make its identification easy in the absence of the male. The species is rather rare in collections.



long as the prothorax, barely two-fifths longer than wide, sides broadly arcuate and subparallel; costæ fairly distinct, slightly more convex, intercostæ all with confused punctuation. Pygidium coarsely subrugosely punctate; propygidium with coarsely punctate apical groove. Body beneath coarsely densely punctate laterally, the metasternum much more finely so at middle. Upper tooth of front tibiæ slightly antemedian; hind thighs numerously punctate at middle. Ungual tooth subapical, small, acute and parallel with, but shorter than the upper portion of the claw on the front feet of the male, on the middle and hind feet of the male and throughout in the female of normal form, broad and obliquely truncate, its apex about three times as distant from the base as from the point of the claw. Length 9.5–10.6 mm.; width 5.2–5.6 mm.

The type was found by Dr. Webb in the Gila Valley, Arizona. It is also known from Utah and Nevada.

As already noted p. 2, this species was originally made the type of the genus *Orsonyx* Lec.

68. *D. anthracina* n. sp.

Oblong, feebly ovate, black, moderately shining, elytra finely alutaceous, prothorax barely visibly so. Mental declivity short, steep, strongly margined. Clypeal margin broadly sinuate at middle, rounded at sides. Clypeal suture rather strongly impressed, clypeus with a faint transverse tumidity; front broadly bi-impressed, punctuation dense. Prothorax only slightly more than one-half wider than long; sides broadly rounded and convergent in front, parallel and nearly straight in basal two-thirds, hind angles rectangular; punctuation fine and sparse. Elytra one-fifth longer than wide, two-fifths wider than the prothorax and not quite two and three-fifths times as long, a little wider posteriorly; costæ distinct, intercostæ with rather sparse and fine irregular punctuation, the serial punctures of the narrow intervals very minute. Body beneath punctate about as usual. Upper tooth of front tibiæ a little in front of the middle; hind thighs sparsely finely punctate at middle; claw with a stout obliquely truncate subapical tooth, its apex nearly twice as distant from the base as from the tip of the claw. Length 11 mm.; width 5.9 mm.

The type was given me some years ago by Mr. Beyer, who took it at Santa Rosa, Lower California.

The form of the prothorax is the most striking character of this species, and, taken together with the size, color and fine sparse thoracic punctuation, should make the species easily recognizable. There is on the thorax a very minute secondary punctuation which does not appear on the elytra.

69. **D. maura** n. sp.

Oblong, subovate, black, moderately shining, the elytra minutely, the prothorax barely visibly alutaceous. Mental declivity beginning about the middle, rather steep, distinctly margined. Clypeal margin broadly sinuate, angles rounded. Clypeal suture fine, less distinct at middle, front nearly flat, punctuation dense. Prothorax two-thirds wider than long, sides broadly arcuate, subparallel in basal half; punctuation rather fine, dense laterally, becoming less close toward the middle, where there is a narrow smooth space posteriorly, which, however, does not reach the basal margin. Elytra three-tenths wider than long, two and two-thirds times as long as and not quite one-fourth wider than the prothorax, slightly widened behind, costæ distinct, intercostæ all wide and rather closely irregularly punctate. Sides of body beneath rather coarsely closely punctate, metasternum minutely sparsely punctate at middle, abdomen sparsely but much more coarsely so. Upper tooth of front tibiæ strongly ante-median; unguual tooth stout, obliquely truncate, its tip nearly twice as far from the base as from the apex of the claw. Length 8.7–9 mm.; width 4.7–5 mm.

Texas (Belfrage).

70. **D. pinguescens** n. sp.

Rather broadly ovate, ferruginous, moderately shining, indistinctly alutaceous, upper surface densely not coarsely punctate. Mentum declivous from just before the middle, declivity strongly margined. Clypeal margin broadly sinuate with rounded angles. Head densely punctate, clypeal suture finely impressed. Prothorax nearly three-fourths wider than long, sides broadly arcuate, subparallel in basal half; hind angles slightly, front angles strongly obtuse, punctuation dense throughout, the punctures, as a rule, closer than their own diameters, even at the middle. Elytra one-fourth longer than wide, a little more than one-third wider than the prothorax and very nearly three times as long, distinctly wider behind; costæ rather feeble but evident, the intercostæ all wide, three to four times as wide as the costæ, closely confusedly punctate. Body beneath densely punctate at sides, this denser coarser punctuation covering all but about the middle fifth of the metasternum. Upper tooth of front tibia distinctly ante-median; unguual tooth long, its tip scarcely twice as far from the base as from the apex of the claw. Length 7.6–8.4 mm.; width 4.5–4.7 mm.

Texas.

71. **D. frondicola** Say.

Oblong-ovate, brown or ferruginous, moderately shining, elytra barely visibly alutaceous. Mental declivity beginning a little in front of the middle, distinctly margined. Clypeal margin moderately sinuate at middle with rounded angles; clypeal suture distinctly impressed,



arcuate at middle; front closely, clypeus usually a little more densely punctate. Prothorax three-fifths wider than long, sides rather broadly arcuate, subparallel in basal half, punctuation quite dense throughout, the punctures not crowded, however, but separated, as a rule, by less than their own diameters. Elytra three-tenths longer than wide, almost one-third wider than the prothorax and two and three-fourths times as long, rather densely and uniformly punctate, costæ distinct, intercostæ wide, irregularly punctate, the serial punctures of the costæ closely placed and but little finer than those of the wide intervals. Sides of body beneath densely punctate, the punctuation sparser at middle. Upper tooth of front tibiæ nearly twice as distant from the base as from the apex of the tibia, unguis long, scarcely shorter than the superior portion of the claw its tip barely twice as distant from the base as from the apex of the claw. Length 6.5–8 mm.; width 3.7–4.3 mm.

This is an abundant species and ranges from New Jersey to Nebraska and Texas. The following localities are represented in the material at hand: New Jersey; Washington, D. C., Maryland; North Carolina; Alabama; Huntsville, Alabama; Mississippi; Louisiana; Waco, Columbus, Cypress Mills, New Braunfels and Burnett County, Texas; Manhattan, Riley County, Wilson County, Kansas; West Point, Nebraska, Cincinnati, Ohio; Kentucky, near Cincinnati (Dury); Crawford County, Indiana; Missouri.

72. *D. basalis* n. sp.

Oblong, scarcely widened posteriorly, rufotestaceous, strongly shining, alutaceous sculpture scarcely visible. Mentum feebly declivous in front from about the middle, declivity feebly margined. Clypeal margin rather widely reflexed, sinuate at middle with angles rounded; clypeal suture distinct, sinuate at middle, punctures of front well separated, of clypeus a little closer but not dense. Prothorax nearly three-fourths wider than long, sides broadly arcuate, subparallel posteriorly, hind angles somewhat obtuse, basal margin impressed from side to side, the impression narrowed a little at middle, punctuation rather dense at sides, a little less so at middle, where the punctures are separated by their own diameters or a little less. Elytra fully three times as long as the prothorax, costæ not conspicuous, punctuation confused on the sub-sutural interval, and irregular in basal half on the outer intercostal spaces. Body beneath closely punctate at sides, more finely and sparsely at middle. Upper tooth of front tibiæ slightly ante-median; unguis broad, obliquely truncate, its apex twice as distant from the base as from the point of the claw. Length 7.5–9 mm.; width 3.9–4.7 mm.

The series before me—mainly from the National Museum—shows the following locality labels: Barnes, Kansas; Kansas; Nebraska; Colorado.

This species looks a little out of place in its present position, and might better be associated with *harperi*, the impression of the basal margin of the prothorax being very similar and nearly as strong as in that species, which, however, differs in its rounded clypeus, wider head, coarser and closer punctuation, somewhat different mentum and more strongly ante-median upper tooth of the front tibia.

73. **D. lengii** n sp.

Moderately elongate, ovate, piceous or black above, a little paler beneath, legs brown, upper surface, more especially the prothorax, with a more or less evident æneous lustre. Mental declivity ill defined, usually beginning at the anterior two-fifths, but sometimes shorter, its hind margin either feebly prominent or not at all so; clypeal margin rounded, feebly sinuate at middle; clypeal suture nearly straight, finely impressed; punctuation of head rather dense. Prothorax a little less than two-thirds wider than long, sides subparallel in basal half, moderately convergent and nearly straight in front, surface scarcely or faintly alutaceous, strongly shining, rather coarsely punctate, the punctures close at sides, separated by their own diameters or more on the disk. Elytra one-third longer than wide, one-third wider than the prothorax and barely three times as long, geminate striæ fairly distinct, the three wider interspaces all confusedly punctate. Body beneath moderately coarsely closely punctate at sides, more sparsely and finely at middle. Upper tooth of front tibia median in position, hind thighs slender, punctate at middle; ungual tooth nearly as long as the superior portion of the claw, its tip about three times as far from the base as from the apex of the claw. Length 9.3–10 mm.; width 4.9–5.5 mm.

The type is from Vowel's Mill, Louisiana, kindly given me by my long-time friend, Mr. Leng, to whom the species is gratefully dedicated. Other specimens are before me from Texas (Liebeck and Dury), Longview, Texas and Atoka, Indian Territory (Wickham).

The subobsolete mental ridge, size, and piceous or blackish color with æneous surface lustre, are sufficiently characteristic when taken together to identify the species. Very few of our species show a perceptible metallic lustre, and of the re-

maining three, *bowditchi* is pubescent, *cephalotes* is separable at once by the cephalic sculpture and *æneus* is much smaller and with angulate clypeus.

74. **D. thoracica** n. sp.

Oblong-oval, brown or ferruginous, shining, the prothorax polished, the elytra with barely perceptible minute alutaceous sculpture, entire upper surface finely rather densely punctate. Mental declivity beginning at anterior two-fifths, summit distinctly elevated. Clypeal margin rounded with a feeble median sinuation, rather strongly reflexed, head densely punctate, clypeal suture feebly impressed, especially at middle. Prothorax two-fifths wider than long, sides broadly arcuate, subparallel behind, finely rather densely punctate throughout. Elytra not quite one-half longer than wide, one-fourth wider than the prothorax and about two and one-half times as long, scarcely wider behind; costæ moderately distinct, each with a row of strong closely placed punctures; intercostæ wide, broadly closely confusedly punctate. Body beneath closely punctate at sides, more sparsely and finely at middle. Upper tooth of front tibiæ median in position, ungual tooth obliquely truncate, nearly as long as the superior portion of the claw, its tip twice as distant from the base as from the apex of the claw. Length 7.5–9 mm.; width 3.9–4.5 mm.

I have seen a considerable number of specimens, all from Texas, many from New Braunfels, the others without specific locality. The prothorax is less transverse in this species than in any other known to me. In the males the abdomen is a little concave beneath in outline when viewed from the side; the tarsi are more hairy beneath, and on the hind legs are more evidently longer than the tibiæ.

75. **D. arcuata** n. sp.

Oblong-subovate, dark brown or piceous, moderately shining, elytra distinctly, prothorax very minutely, alutaceous. Mental declivity beginning at the anterior one-third or two-fifths, rather steep, strongly margined; clypeal margin arcuate from side to side, no median sinuation; clypeal suture distinctly impressed, clypeus densely punctate, front nearly as densely so, the punctures becoming less close at the middle of the vertex. Prothorax three-fourths wider than long, widest at or slightly behind the middle, sides rather strongly arcuate, angles all obtuse, punctures rather fine, distant by their own diameters more or less at sides, sparser at middle. Elytra one-fourth longer than wide and not quite two and three-fourths times as long as the prothorax, evidently wider behind; punctuation coarser than on the prothorax, confused in the first intercostal space, more narrowly

so in the second and only slightly so in the third. Pygidium sparsely punctured. Body beneath nearly smooth at middle, moderately coarsely but not very closely punctate at sides of abdomen, more closely at sides of metasternum. Upper tooth of front tibia at or a little above the middle. Hind thighs with very few punctures medially, unguar tooth rather slender, post-median, its tip about two-thirds as distant from the apex as from the base of the claw. Length 6.2–7.6 mm.; width 3.4–4.3 mm.

*Hab.*—Arizona. A single specimen from Phoenix taken by Mr. Wickham, others in the Horn collection without more exact locality.

The raised margin of the mental declivity is unusually strong for a species of its size; the unguar tooth is also less apical than in other species in this part of the genus.

76. **D. dubia** Lec.

Oblong-ovate, brown, shining, not or with but faint trace of alutaceous sculpture on the elytra, entire upper surface densely or closely punctate. Mental declivity moderate, beginning at about the anterior third, finely margined. Clypeal margin rotundate, clypeus densely punctate, suture distinctly impressed throughout, arcuate at middle; front evenly broadly subconvex, the punctures close but not crowded. Prothorax not quite two-thirds wider than long, widest just before the base, sides broadly rounded, subparallel toward the base, convergent anteriorly; punctuation close throughout, the punctures separated by less than their own diameters, as a rule, at all points, a little sparser along the median line posteriorly, as usual. Elytra two and two-thirds times as long as the prothorax, about one-fifth longer than wide, a little wider behind; densely, moderately coarsely punctate, the costæ ill defined, the punctuation confused on all the intercostal spaces, the serial punctures of the costæ finer than the others but coarser and closer than usual. Pygidium densely punctate; abdomen densely punctate laterally, closely so medially. Metasternum rather densely punctate at sides, more finely and less closely at middle. Upper tooth of front tibiæ small, submedian in position; tarsi more hairy beneath in the male. Unguar tooth subapical, moderately stout, obliquely truncate, its apex twice as far from the base as from the point of the claw. Length 7–7.5 mm.; width 3.9–4.2 mm.

The LeConte types were taken by Haldeman in Texas. Three examples from the same State are now before me, one from Victoria (National Museum collection), one from Fedor in my own collection, and the third without definite locality in Mr. Schaeffer's collection. The species seems decidedly rare.

*Dubia* very greatly resembles *frondicola*, but may be distinguished by the more hairy male tarsi, the rounded clypeus (always a little emarginate or truncato-emarginate at middle in *frondicola*) and by the upper tooth of the front tibiæ median or slightly post-median in position (distinctly ante-median in *frondicola*). This upper tibial tooth is small or subobsolete in the few specimens of *dubia* and is especially referred to by LeConte, but the development of the tibial teeth is often somewhat variable and may prove so in this case.

**77. *D. curvaticeps* n. sp.**

Oblong, subovate, reddish-brown or castaneous, shining, elytra minutely alutaceous. Mental declivity long, beginning at anterior two-fifths or even nearer the middle, summit of declivity moderately elevated. Clypeal margin arcuate from side to side. Clypeal suture moderately impressed, front and clypeus rather densely punctate. Prothorax one-half wider than long, similar in form to *frondicola* but less transverse; punctuation sparser than in *frondicola*, the punctures separated by from one to two times their own diameters. Elytra three-tenths longer than wide and two and two-fifths times as long as the prothorax, very slightly widened posteriorly; punctuation moderate, distinctly less close than in *frondicola*, irregular in the intercostal spaces, the costæ well defined. Pygidium coarsely not very closely punctate, Body beneath sparsely punctate at middle, more closely but not densely at sides. Upper tooth of front tibiæ distinctly ante-median; unguis rather slender, subapical, obliquely truncate, its apex about twice as distant from the base as from the end of the claw. Length 6.6–8 mm.; width 3.8–4.4 mm.

*Hab.*—Brownsville, Texas. Collected by Beyer, Schaeffer and Barber.

**78. *D. bidentata* Lec.**

Ovate, strongly convex, black or castaneous, polished and strongly shining. Mental declivity feebly margined; clypeus rounded in front. Head and prothorax sparsely punctured, elytra more closely and less sparsely so; intercostal punctuation confused. Beneath more closely and densely punctate. Upper tooth of front tibia smaller or subobsolete, a little behind the middle and much nearer the second tooth than the latter is from the apical one. Unguis subapical, broader than and nearly as long as the superior portion of the claw, its tip three times as distant from the base as from the apex of the claw. Length 6.2–7.7 mm.; width 3.6–4.5 mm.

*Hab.*—Georgia (types); Florida (St. Augustine, Fernandina, Marion County, Crescent City, Enterprise, Ormond, Tampa, Cedar Keys, Key Largo); New Jersey (Alice—Liebeck collection).

The above brief description is amply sufficient to characterize this well-known species, which cannot well be confused with any other. The small size, color, polished surface and sparse punctuation of head and thorax at once separate it from any other species of the same region, while in the relative distances apart of the tibial teeth it is almost unique, the middle tooth being at least as near and generally nearer to the apical tooth than to the upper one.

79. **D. abnormis** n. sp.

Oblong, moderately elongate, rufotestaceous, elytra finely alutaceous, thorax polished. Antennæ nine-jointed. Mentum broadly convex, declivity short, rather steep, rounding into the upper surface without trace of raised margin, but with the usual row of setigerous punctures. Clypeal margin arcuate from side to side, clypeus closely punctate, subtumid along the deeply impressed suture; head sparsely punctured, usually with a more or less distinct elongate triangular impression above each eye, widest at the eye and tapering upward, the impression more or less alutaceous and dull, the surface elsewhere polished. Prothorax almost twice as wide as long, widest at base, sides straight or feebly sinuate and convergent to the middle, thence more arcuate and convergent to apex; hind angles somewhat acute; disk sparsely punctate, the punctures nearly evenly distributed and from one to two times their own diameters apart. Elytra nearly two-fifths longer than wide and rather more than three times as long as the prothorax, evidently widened behind; costæ distinct, broader intervals all with confused punctures. Metasternum densely punctate at sides, nearly smooth at middle, more broadly so posteriorly as usual; abdomen alutaceous and dull, very sparsely punctate medially, closely so laterally. Tibial teeth nearly equidistant, the upper one evidently ante-median in position. Ungual tooth oblique, slightly post-median, its tip but little farther from the base than from the apex of the claw. Length 6–7.8 mm.; width 3.2–3.75 mm.

The type of this species is one of two examples collected in New Mexico (no locality named) by Prof. Snow. Other specimens from New Mexico and Arizona are in the Horn collection.

*Abnormis* is notable in being the only exception thus far



known in the genus as regards the number of antennal joints, viz.: nine instead of ten. The fact is of no great moment, however, and considering the variation in this respect in certain nearby genera, *e. g.* *Lachnosterna* and *Dichelonycha*, the surprise is rather that there should be such uniformity in so large a genus. The species is rather a remarkable one in several other particulars, notably in the peculiar and variable supra-orbital impressions. In one example these impressions are double and occupy the greater part of the vertex and occiput, approaching so closely as to leave only a longitudinal median carina between them; in another example the anterior margin of the thorax is broadly impressed each side instead of the head. The acute hind angles of the thorax is a very unusual character and the form of the mentum and position of the unguis are both exceptional in this part of the genus.

80. ***D. harperi*** Blanch.

Oblong, very little wider posteriorly, reddish-brown to blackish-brown, surface polished, with at most but faint traces of alutaceous sculpture on the elytra. Mental declivity short and not strongly oblique, beginning at about the anterior third, summit feebly or moderately margined; mentum flat posteriorly with more or less numerous large shallow punctures. Clypeus usually broadly rounded from side to side, rarely subtruncate or subsinuate at middle; clypeal suture distinct, arcuate at middle; punctuation of head moderately dense, but a little variable. Prothorax somewhat variable in form, usually nearly twice as wide as long, sides very broadly arcuate and a little convergent, the apex not much narrower than the base, punctuation coarse, dense at sides, less so medially, basal margin strongly impressed from side to side, the impressed line not or scarcely narrowed at middle. Elytra rather more than three times as long as the prothorax, coarsely quite densely punctate, less closely and coarsely at middle as usual. Upper tooth of front tibiae much nearer the apex than the base; thighs rather slender; unguis stout, obliquely truncate, nearly as long as the superior portion of the claw, its tip twice as far from the base as from the apex of the claw. Length 7-10 mm.; width 3.7-5.3 mm.

An abundant and widely dispersed species, occurring from New York to Florida and westward to Kansas and Texas. There is a specimen from Utah in the Nat'l Museum collection. The following localities are represented in the material



before me: New York; New Jersey; Plummer's Island, Maryland; District of Columbia; Ft. Monroe, Virginia; Savannah (type locality) and Thomasville, Georgia; Florida; Huntsville, Alabama; Louisiana; Tennessee; Bee Spring, Kentucky; Cincinnati, Ohio; Indiana; northern and southern Illinois; Ann Arbor, Michigan; Dane County, Wisconsin; Iowa City, Iowa; St. Louis and St. Charles, Missouri; Arkansas; Argentine, Benedict and Onaga, Kansas; Nebraska; Texas; Utah.

Barring *texana*, which is closely allied, there is little danger of mistaking this species for any other. The rounded clypeus, strongly transverse prothorax with sides straighter and less convergent than usual, with the distinctly impressed basal margin, and the rather coarse and dense punctuation, give the species an exceptionally strong individuality. The differences from *texana* are given under that species. It is certainly possible and I am rather strongly inclined to believe that the unique type of *Alobus fulvus* Lec. is only a somewhat aberrant form of *D. harperi*. An examination of the type shows that LeConte was in error in saying that *Alobus* differed from other *Diplotaxis* in lacking the narrow membranous front margin of the thorax. The form of the terminal joint of the maxillary palpi is truly more elongate and cylindrical than in any *harperi* which I have examined, it is, however, a fact that this terminal joint is unusually slender in *harperi* and varies to such an extent that the difference between the extremes is greater than between one of them and *Alobus*. The color in *Alobus* is a paler yellow than in any *harperi* I have seen, but this is of no consequence and might happen in any species. It is, moreover, very remarkable, if the species is a good one, that in the more than fifty years since its description, a second specimen has not yet occurred, and that in a region so constantly worked over as the type locality—New York.

81. *D. texana* Lec.

This species resembles the preceding in many respects and notably in two of its important characters, viz.: the rotundate clypeus and impressed basal margin of the prothorax; the lat-

ter is, however, less marked and is narrowed or subobsolete at middle. *Texana* differs further from *harperi* in the longer mental declivity, this beginning at or but little in advance of the middle, in the somewhat less transverse prothorax, and the generally less coarse and dense punctuation of the upper surface. The elytra are finely alutaceous in *texana*, scarcely so in *harperi*.

Few specimens have been seen, all from Texas, and most of them collected by Belfrage. LeConte described his type from New Braunfels. In the original description, allusion is made to a second example believed to be identical but differing in having the clypeal margin "feebly hemihexagonal." This example I find, on examination, to be a specimen of my *thoracica* described in the present paper.

## 82. *D. languida* Lec.

Elongate-oblong-oval, head and thorax rufotestaceous, elytra yellowish testaceous; upper surface without perceptible alutaceous sculpture. Mental declivity feebly oblique, not or scarcely margined and as a rule defined only by the row of setæ. Clypeal margin broadly rotundate, clypeal suture moderately impressed, head closely punctate. Prothorax three-fifths wider than long, widest at middle, sides feebly convergent or subparallel in basal half, broadly arcuate and convergent anteriorly; punctuation moderately coarse, the punctures separated by about their own diameters, the surface somewhat uneven. Elytra a little more than three times as long as the prothorax, sides broadly arcuate and parallel; costæ distinct, a little more convex, each with a row of five distant punctures; intercostal areas only moderately wide, the first with broadly confused punctuation, on the second more narrowly so, on the third only slightly irregular, except near the base. Body beneath moderately punctate, the punctures not conspicuously sparser and finer medially. Upper tooth of front tibiæ usually nearly twice as distant from the apex as from the base, sometimes a little nearer the middle tooth than the latter is from the apical one, though as a rule the teeth are nearly equidistant. Hind thighs rather stout. Ungual tooth subapical, nearly as long as the superior portion of the claw, its tip three times as distant from the base as from the apex of the claw. Length 5.8-6.8 mm.; width 2.85-3.5 mm.

This little species is apparently rather common in Florida. Specimens are known to me from St. Augustine, Enterprise, Crescent City, Tampa and Key Largo.

The small size, elongate form, pale color, rounded clypeus, somewhat uneven surface of prothorax, and subobsolete mental declivity are more than enough to identify this species—the size, color and habitat usually being amply sufficient.

83. ***D. pumila*** n. sp.

Oblong-ovate, only moderately shining, the prothorax minutely, the elytra more distinctly alutaceous. Mental declivity rather short, feebly oblique, scarcely margined. Clypeal margin rounded, subtruncate at middle. Head rather densely punctate, clypeal suture feebly impressed, especially at middle. Prothorax slightly more than one-half wider than long, sides strongly rounded at basal two-fifths, moderately convergent behind, more strongly convergent and nearly straight in front; front angles a little prominent and subacute; punctuation close, punctures nearly in contact at sides, separated by their own diameters or rather less, at middle. Elytra about two and two-fifths times as long as the prothorax, first costa evident, second less distinct; first intercostal space confusedly rather coarsely and closely punctate, second with the punctuation somewhat irregular, third with regular series of punctures except toward the base. Body beneath moderately punctate. Teeth of anterior tibiae obtuse, the upper one sub-medial in position. Ungual tooth subapical, its tip about twice as distant from the base as from the apex of the claw. Length 5.3 mm.; width 3 mm.

The type specimen in the writer's collection was taken by Prof. Snow in the Baboquivaria Mountains of southeast Arizona. There is a specimen in the Horn collection taken by Wickham in the Santa Rita Mountains, Arizona; and others from New Mexico without specific locality. This is the smallest species of the genus known to me.

84. ***D. tarsalis*** Schf.

Oblong-ovate, ferruginous to piceous, moderately shining, elytra very finely alutaceous, prothorax barely perceptibly so with a good triplet; punctuation fine and rather sparse. Mentum with coarse, shallow punctures, the declivity very short, feebly or scarcely margined posteriorly. Clypeal margin emarginato-truncate at middle, the angles well defined, sub-dentiform, with or without external sinuation. Head rather sparsely punctate, the clypeus more closely so; clypeal suture moderate. Prothorax three-fourths to four-fifths wider than long, widest at base, the sides nearly straight, and subparallel in basal half, subangularly rounded at middle, straight and convergent anteriorly; hind angles a little obtuse, their vertices narrowly rounded; surface broadly impressed within the basal angles, punctuation fine

and sparse on the disk, a little closer at sides. Elytra nearly three times as long as the prothorax, slightly wider behind, finely punctured, costæ distinct but scarcely elevated, each with a somewhat irregular row of finer punctures; intercostæ all rather wide and confusedly punctured. Body beneath closely and a little more coarsely punctate at sides, sparsely and finely at middle. Upper tooth of front tibia strongly ante-median; hind thighs slender; tarsal joints clothed toward the apex of the under surface with dense fulvous hairs; ungual tooth subapical, obliquely truncate, its tip about twice as distant from the base as from the apex of the claw. Length 8.6–9.2 mm.; width 4.7–4.9 mm.

Arizona (Huachuca and Chiricahua Mountains), Schaeffer; Beyer and Hubbard and Schwarz collections.

This is the largest of our non-pubescent species with angulate clypeus, and may easily be recognized by its size, sparse and fine punctuation, mental and tarsal characters. There seems to be very little sexual difference in tarsal vestiture. In the male the terminal joint of the maxillary palpi is subcompressed, dilated, its inner margin strongly rounded; in the female elongate-oval or subcylindrical, with apex more or less obliquely truncate.

85. *D. polita* n. sp.

Oblong-ovate, rufotestaceous to piceous, surface polished and strongly shining, with scarcely a trace of alutaceous sculpture. Mental declivity quite strongly oblique, beginning at anterior third, distinctly margined behind. Clypeal margin rather strongly reflexed, emarginate at middle, the limiting angles quite variable, usually quite distinct or even sharply defined and with feeble external sinuation, but not infrequently distinctly rounded and without trace of external sinus. Head moderately closely punctate, more sparsely so toward the vertex, clypeus with the punctures closer but not crowded, suture finely impressed. Prothorax two-thirds wider than long, widest at or just behind the middle, sides strongly arcuate, front angles slightly prominent and sharply defined, hind angles obtuse but evident; disk moderately punctate, anterior and middle lateral foveæ distinct. Elytra three times as long as the prothorax, evidently wider behind, costæ moderate, subsutural interspace moderately wide and confusedly punctate, the other intercostal spaces a little narrower, irregularly punctate at least toward the base. Propygidium densely punctate, the submarginal groove feeble or subobsolete; pygidium coarsely densely punctured. Body beneath punctate about as usual. Upper tooth of front tibia submedian, hind thighs rather stout. Ungual tooth very

broad, obliquely truncate, its tip about one and one-half times as distant from the base as from the end of the claw. Length 7-8 mm.; width 3.6-4.2 mm.

Lower California, San Jose del Cabo and Santa Rosa (Beyer).

The variation of the front of the clypeal margin is greater in this than in any other of our species, and specimens with the more broadly rounded clypeal angles would naturally be referred by students to a different section of the genus. I have a suspicion that the difference is in some degree sexual, as is said to be true in certain Mexican species, but it is so difficult to distinguish the sexes that I am not sure of this. The polished integuments with almost complete lack of alutaceous sculpture is a rare character and of itself sufficient to distinguish *polita* among those with which it could by any possibility be confused. I have noticed in this species a very minute crenulation toward the base of the inner margin of the claws. This structure is visible only with a strong lens in a good light. It is present in all examples of the species which I have examined, but I have detected it elsewhere only in *chiricahuæ*.

86. **D. errans** n. sp.

Oblong-oval, rufotestaceous, strongly shining, elytra scarcely detectably alutaceous, rather finely punctate. Mental declivity very short, beginning in advance of the anterior fourth, distinctly margined; clypeus broadly reflexed, truncate at middle, the truncation just perceptibly emarginate, limiting angles distinct but not prominent, and with a well marked external sinus; basal part of clypeus in the same plane with the front, the suture distinct and smooth at sides, nearly obliterated medially. Head densely not coarsely punctate. Prothorax not quite one-half wider than long, widest at or very slightly in advance of the middle, sides strongly arcuate, base a little wider than the apex, all the angles obtuse; punctuation fine, punctures distant from one to two times their own diameters, closest near the front angles and in an area on each side of the middle of the disk. Elytra two and two-fifths times as long at the prothorax, scarcely wider behind, costæ moderately distinct, first intercostal space moderately wide and confusedly punctate; second narrower and with a single somewhat irregular series of punctures; third a little wider and more irregularly punctured. Beneath rather finely and sparsely punctate, more closely at sides as usual. Anterior tibiæ broad, strongly toothed, the

upper tooth at about the basal third. Hind thighs very stout, hind tibiae stout, a little shorter than the femora. Ungual tooth subapical, evidently shorter and not appreciably stouter than the superior portion of the claw, its tip about two and one-half times as distant from the base as from the apex of the claw. Length 9.1 mm.; width 4.6 mm.

*Hab.*—Texas.

The type and only representative of this very distinct species is in the Horn collection.

87. ***D. truncatula*** Lec.

Oblong-subovate, dark piceous brown, more rarely red-brown, moderately shining, elytra finely, the prothorax minutely alutaceous. Mental declivity beginning at about the anterior one-third or two-fifths, posterior margin distinctly elevated. Clypeal margin truncate and feebly sinuate at middle, the angles well defined but obtuse, without or with but faint trace of sinuation. Clypeal suture well impressed, often a little smoother, head elsewhere densely punctate. Prothorax very nearly two-thirds wider than long, widest at posterior one-third or two-fifths; sides broadly rounded and convergent in front, hind angles very obtuse, rounded, scarcely defined; punctuation rather fine, moderately close though somewhat variable. Elytra rather less than two and three-fourths times as long as the prothorax, slightly more than one-fourth longer than wide, feebly wider behind; costae distinct, very remotely and finely punctate, all the intercostae wide and confusedly moderately coarsely punctate. Body beneath punctate about as usual, the punctures at sides moderately coarse but not very dense. Dorsal and ventral segments separated by a raised line. Upper tooth of front tibiae slightly ante-median, more distant from the middle tooth than the latter is from the apical one. Hind thighs stout, very sparsely punctate at middle. Ungual tooth subapical, broad and almost squarely truncate, its tip about twice as distant from the base as from the end of the claw. Length 6–7.4 mm.; width 3.3–4 mm.

*Hab.*—Kansas, Texas and New Mexico.

The type, as well as almost all other specimens seen, are from Texas—for the most part without specific locality. Mr. Wickham has found it as far west as Alpine, and it has been taken at Brownsville by most of the collectors who have visited that place in recent years. The New Mexico specimen was taken at La Trementina and sent me by Prof. Cockerell, but it is not typical, the prothorax being widest at about the middle. There is considerable variation in the form and punctuation of the thorax, and I feel almost certain that *con-*



sors Lec. is only one of these varieties. It differs from the typical form only in the thorax, being slightly less transverse and less closely punctate. I regard *morula* Lec. also as a synonym of *truncatula*; the unique type differing in no way except by its somewhat narrower form.

88. **D. punctata** Lec.

Oblong-oval, dark-brown, shining, elytra very finely alutaceous, prothorax scarcely or barely visibly so. Mental declivity short, beginning at or about the anterior one-fourth, margined at summit. Clypeal margin hemihexagonal, the middle truncature sometimes feebly emarginate, angles distinct but obtuse and without or with but faint trace of external sinus. Head densely or closely punctate, clypeal suture distinct but not much impressed, a little smoother. Prothorax from three-fifths to two-thirds wider than long, strongly subangularly rounded at middle, the sides nearly straight before and behind, apex nearly equal in width to the base; front angles a little obtuse; hind angles more obtuse but fairly well defined; punctuation rather coarse and sparse and somewhat less sharply impressed than usual. Elytra about two and three-fourths times as long as the prothorax, suboval, sides broadly arcuate; costæ not distinct; punctuation rather coarse, confused on the broader intervals, the costæ with a row of fine distant punctures. Pygidium sparsely punctate. Body beneath rather coarsely and sparsely punctate, finer toward the middle. Upper tooth of front tibia strong and evidently post-median in position; hind thighs not stout; ungual tooth subapical, its tip nearly or quite three times as distant from the base as from the apex of the claw. Length 7-8 mm.; width 3.9-4.4 mm.

*Hab.*—Texas (San Antonio, New Braunfels, Marfa and Del Rio), and New Mexico (Roswell and Tecumcari).

LeConte's type was taken at "Frontera" on the Rio Grande. *Punctata* is more likely to be confused with *truncatula* than with any other species, but the latter differs quite constantly in its more finely and closely punctate thorax, the point of maximum width of the latter is more posterior, the pygidium is more closely punctate, the upper tooth of front tibia is in front rather than behind the middle and the hind thighs are stouter.

89. **D. chiricahuæ** n. sp.

Oblong-ovate, rufotestaceous or brown, moderately shining, elytra finely alutaceous, prothorax not evidently so. Mental declivity short, beginning at about anterior fourth, distinctly margined. Clypeal mar-

gin truncato-emarginate at middle, the limiting angles rather prominent and sharply defined but not dentiform; usually without or with but slight external sinuation. Head closely punctate, clypeal suture nearly straight, moderately impressed; front flat or with a broad feeble concavity at middle just behind the suture. Prothorax three-fifths wider than long, sides strongly rounded at or just behind the middle, nearly straight before and behind, the base a little wider than the apex, the apical margin more obviously angulate at middle than usual; hind angles obtuse but fairly well defined; punctuation rather fine and moderately close, the punctures separated by one-half to one and one-half their own diameters. Elytra not quite three times as long as wide, a little wider behind, costæ not very distinct, the broader intervals with irregular punctuation which is, however, only narrowly so on the two outer ones. Body beneath finely punctured, sparsely at middle, not very closely at sides. Upper tooth of front tibiæ a little beyond the middle; unguis tooth subapical, obliquely truncate, not much wider than the upper part of the claw, its tip barely twice as far from the base as from the apex of the claw. Length 6.5-7.8 mm.; width 3.3-3.9 mm.

This species has been taken in southeast Arizona at Nogales, and in the Santa Rita, Huachuca and Chiricahua Mountains by Hubbard and Schwarz, Snow, Wickham, Beyer and Schaeffer. It has been taken in the Chiricahuas at an elevation of 5,000 feet during July of the present summer (1908), by my friend Mr. Victor L. Clemence of Pasadena, California, to whom I am indebted for many other good things from the same locality.

90. **D. levicosta** n. sp.

Oblong-oval, scarcely wider behind, elytra minutely alutaceous, the prothorax barely visibly so. Mental declivity beginning at about the anterior two-fifths, distinctly margined. Clypeus rather strongly emarginate at middle, the limiting angles prominent but not acute, and with a distinct external sinus. Head closely or densely moderately coarsely punctate, clypeal suture fine, obliterated at middle in one example. Prothorax four-fifths wider than long, sides moderately rounded at basal two-fifths, nearly straight anteriorly, the anterior angles a little produced, base angles obtuse; punctuation fine and rather sparse. Elytra three times as long as the prothorax, costæ moderately defined, rather narrow, impunctate or virtually so except toward the apex; punctuation confused on the first two intercostal spaces, of which the first is nearly double the width of the second; irregular only toward the base in the third. Body beneath very

sparsely punctate medially, not very closely so laterally. Upper tooth of front tibia strong, slightly post-median. Ungual tooth post-median, evidently shorter than the upper portion of the claw, not very stout, obliquely truncate, its apex scarcely twice as distant from the base as from the point of the claw. Length 7-7.5 mm.; width 3.8-4 mm.

New Mexico (Albuquerque and Cloudcroft).

Two examples only of this species have been seen, that from the first named locality, collected by Wickham, the other by Viereck and now in the collection of the Philadelphia Academy of Sciences.

The almost complete absence of the serial punctures of the elytral costæ—except near the apex—is a very unusual character noticed elsewhere only in *atrátula*.

91. **D. confusa** n. sp.

Oblong-ovate, rufotestaceous, moderately shining, the elytra distinctly finely alutaceous. Mental declivity fairly distinct, beginning a little in front of the middle, feebly or not at all margined behind. Clypeus emarginate at middle, angles sharply defined and prominent, with usually a slight external sinus; surface broadly convex at middle, feebly concave at sides, punctuation close but not crowded; suture moderately strongly impressed, arcuate at middle; front distinctly broadly impressed or concave at middle behind the clypeal suture; punctures separated by their own diameters or less, becoming a little sparser on the vertex, the occiput smooth at least in part. Prothorax about three-fifths wider than long, widest at or just behind the middle, sides strongly rounded, straight or faintly sinuate anteriorly; front angles obtuse, not prominent, hind angles more broadly obtuse; punctuation less close than on the head, the punctures separated by from one to two times their own diameters except near the anterior margin, where they are more densely placed; median lateral foveæ rather deep, the others faint or lacking. Elytra barely two and one-half times as long as the prothorax and about one-fourth longer than wide; costæ distinct, first interspace wide, confusedly punctate; second narrower, punctuation variable, confused throughout its length in the type, but only very slightly so or only toward the base in others; third with punctuation usually a little more irregular than in the second. Propygidial marginal groove nearly obsolete, pygidium moderately closely punctate. Body beneath rather finely and sparsely punctate. Upper tooth of front tibiæ at or a little in front of the middle; unguual tooth subapical, rather stout, obliquely truncate, its apex about twice as far from the base as from the point of the claw. Length 5.3-6.9 mm.; width 3.1-3.6 mm.

Lower California (El Taste, San Felipe, Santa Rosa, San Jose del Cabo). All specimens seen collected by Mr. Beyer.

The specimens here referred are quite variable in two or three particulars, but I think there is little doubt of their identity. The width of the front between the eyes varies from two to three times that of the eye as viewed from the front. This difference is of course fundamentally sexual in nature, but there is evidently some little variation in the same sex. In the smallest specimens of the series before me, the punctuation is finer, and that of the second and third intercostal space is much more regular than in the typical form. In these also the mental declivity is completely obsolete, being defined only by the transverse row of setæ. *Confusa* is closely allied to *angularis*, with which LeConte appears to have confused it. See remarks under *angularis*.

92. *D. angularis* Lec.

Oblong, elongate, very little wider behind, rufotestaceous, shining, the elytra minutely alutaceous. Mentum flat, rather feebly declivous in anterior fourth, margin of declivity with row of setæ but scarcely at all elevated. Clypeal margin angulate, emarginate at middle, sides sinuate near the angles making the latter quite prominent; clypeal suture straight, distinct though not excavated; front evenly broadly convex, punctuation of head and clypeus dense but not crowded, evenly distributed; distance between the eyes three and one-third times the width of the latter, as seen from the front. Prothorax not quite one-half wider than long, widest a little behind the middle, sides strongly rounded at this point, nearly straight and with just a suspicion of a sinuation before the angles; front angles a little obtuse; hind angles very obtuse, vertices somewhat rounded; punctuation nearly uniform in size like that of the head, but less dense, the punctures separated by from a little less to a little more than their own diameters, scarcely closer laterally. Elytra very nearly three times as long as the prothorax, slightly more than one-half longer than wide; costæ rather well defined, first intercostal space three times the width of the sutural interval. Second nearly two-thirds the width of the first; punctures numerous and confused in all the broader intervals, costæ slightly more convex, each with a single line of distant fine punctures. Body beneath rather finely not very closely punctured at the sides, metasternum nearly smooth at middle. Teeth of anterior tibia equidistant, the upper one midway between base and apex. Hind thighs rather slender, very sparsely finely punctate at middle.

Ungual tooth moderate, sub-truncate, strongly post-median, its tip rather more than twice as far from the base as from the end of the claw. Length 7 mm.; width 3.4 mm.

*Hab.*—Copper mines of the Gila, Dr. Webb.

The above description is made from the type. With it is a second specimen which agrees perfectly except in being slightly smaller, also two other examples which are smaller and more ovate, and were evidently taken by LeConte to be females of the same species. While I cannot positively deny this, it seems to me very unlikely. The two specimens are apparently females, as indicated by the stouter hind thighs, but the eyes are relatively larger than in the male type, being separated on the front by a little less than three times their own width; the clypeus is not appreciably sinuate externally, the punctuation of the head is denser, the front is impressed at middle and the elytral punctuation is sparser and finer. These specimens seem very near my *confusa*, and I am disposed for the present to regard them as a variety of that species.

93. *D. ænea* Blanch.

Elongate-oblong, not or but slightly wider posteriorly; greenish-black; elytra, tibiae, tarsi and front of clypeus brown or brownish testaceous, the elytra with viridi-æneous surface lustre; elytra densely rather coarsely punctate, prothorax more finely and less densely so, surface shining, the elytra feebly minutely alutaceous. Mentum declivous from anterior third, declivity margined behind. Clypeal margin sharply angulate, truncate or emarginate at middle, the angles prominent and with distinct external sinuation at least in the male; head densely punctate, clypeal suture finely or scarcely impressed, feeble or obsolete at middle. Prothorax varying from a little less than one-half to a little more than one-half wider than long, widest at or just behind the middle, sides moderately strongly arcuate, more convergent in front, hind angles very obtuse and not sharply defined, punctuation somewhat variable, usually moderately close, the punctures distant from a little less to a little more than their own diameters. Elytra two and two-thirds times as long as the prothorax, costæ fairly distinct but rather narrow, intercostal spaces all wide and coarsely densely punctate. Propygidial marginal groove obsolete. Body beneath punctate about as usual. Upper tooth of front tibia slightly ante-median in position. Ungual tooth rather slender, not or but little truncate, its apex about three times as distant from the base as from the end of the claw. Length 6–6.6 mm.; width 2.9–3.25 mm.

Texas. Three examples in the National Museum collection. There are other specimens in the same collection from Mexico, where the species is apparently common and widely dispersed. This little species will be at once recognized by its color, which is quite different from anything else in our fauna.

94. **D. misella** n. sp.

Oblong-oval, rufotestaceous, moderately shining, upper surface rather coarsely punctate, the elytra minutely sub-alutaceous; mental declivity very short and feebly oblique, hind margin not elevated. Clypeus hemihexagonal, broadly roundly emarginate between the sharply defined angles, feebly or scarcely sinuate laterally. Head closely strongly punctate, clypeal suture not impressed, front broadly evenly convex. Prothorax slightly more than two-fifths wider than long, widest just behind the middle, sides strongly arcuate; front angles obtuse, well defined but not at all advanced; hind angles broadly rounded and indistinct; surface moderately closely rather coarsely punctate. Elytra two and one-half times as long as the prothorax, almost one-half longer than wide; costæ not very distinct, very remotely finely punctate; first intercostal space moderate in width, and confusedly punctured; second and third with nearly regular series of punctures. Pygidium and propygidium not densely punctate, the latter without apical groove. Body beneath rather sparsely not coarsely punctate. Upper tooth of front tibia sub-median; hind thighs impunctate medially; unguar tooth subapical, its tip about twice as far from the base as from the apex of the claw. Length 5.5 mm.; width 2.7 mm.

Cochise County, Arizona. One example sent by Prof. Snow. Next to *pumila* this is the smallest species in our fauna. The two may be readily distinguished by the clypeal differences.

95. **D. tenuis** Lec.

Elongate subparallel, rufotestaceous, elytra minutely alutaceous. Mental declivity ill-defined, not margined behind. Clypeus arcuately emarginate at middle, the angles moderately well defined, without external sinuation. Head densely punctate, clypeal suture finely impressed, rather strongly posteriorly flexed at middle. Prothorax three-fifths wider than long, widest just behind the middle, sides strongly arcuate, nearly straight anteriorly; front angles obtuse, not in the least prominent, hind angles broadly rounded and ill-defined; punctuation rather sparse. Elytra very nearly three times as long as the prothorax, one-half longer than wide, scarcely wider posteriorly, costæ not very distinct, first intercostal space only with the punctua-



tion distinctly confused. Pygidium and propygidium sparsely punctured, the latter without trace of apical groove. Body beneath sparsely finely punctate. Upper tooth of front tibia a little behind the middle; hind thighs subimpunctate medially; ungual tooth slender, subapical but evidently shorter than the upper part of the claw, more or less obliquely truncate at apex, its tip nearly three times as far from the base as from the apex of the claw. Length 6.25 mm.; width 2.7 mm.

The type of this species was found dead at Vallecitas, in the desert region of southeastern California. It lacks the head, therefore could not be properly described by LeConte. A specimen in my own collection from Hagua Hala on the Colorado River in western Arizona agrees very well with the type, is assumed to be identical, and the description of the head is drawn from the specimen. In the type the hind coxal plates are almost smooth and the abdomen is sparsely punctate; in my Arizona specimen the coxal plates are sparsely punctured and the abdomen almost smooth except at the extreme sides. LeConte says that the elytral costæ are impunctate. I did not verify this in my examination of the type, or at least made no note of it. In the Arizona example the costæ have each a series of very fine distant punctures.

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#### UNRECOGNIZED SPECIES.

- D. punctatorugosa* Blanch., loc. cit., 171; Burm. Handb., iv, 2, p. 263.  
*D. frondicola* Blanch. (not Say.), loc. cit. This species has been re-  
garded as a variety of *excavata* and perhaps correctly so.

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#### EXPLANATION OF PLATE.

The figures in all cases show the form of the clypeal margin and the tarsal claws. The former have been drawn with the aid of the camera lucida to virtually the same scale, and therefore nearly represent the relative size of the head in the different species. This is not true of the claws.

No references to the plate have been made in the body of the paper, but as the names of the species are arranged alphabetically in the following description, it is easy to ascertain at once whether any given species is represented.

*D. abnormis*.—Clypeus as in 44; claw 47.

*D. acerba*.—Clypeus as in 32; claw 34.

*D. ænea*.—Clypeus not very different from 3; claw nearly as in 35.

*D. ambigua*.—Clypeus 35, the median sinuation sometimes more and sometimes less marked than in the figure; claw 34.